TOTAL MAXIMUM DAILY LOAD
FOR TOXICS FOR THE CALCASIEU ESTUARY

Comments

Comments

Gulf Restoration Network **Comment: 001/0001** **Response: 001/0001**

According to a federal TMDL advisory committee formed in 1998, waters should only be removed from the state 303(d) list when (1) new data shows the listed water has attained water quality standards or (2) new information shows that the original listing was in error. The GRN believes that waters should only be removed from the 303(d) list when one of these two conditions is satisfied.

Gulf Restoration Network **Comment: 001/0002** **Response: 001/0002**

In addition, all information and data used to show that the water is currently meeting water quality standards must be provided to the public for review. Without this information, it is impossible for members of the public to make detailed, knowledgeable comments on the validity of the proposed delistings.

Gulf Restoration Network **Comment: 001/0003** **Response: 001/0003**

The GRN notes that only 4/20 of the proposed delistings were accompanied by information and data that are used to support the delisting proposals. In particular, subsegments 030301 (ammonia), 030302 (non-priority organics), 030306 (non-priority organics), 030901 (non-priority organics), 030901 (other inorganics), 030302 (priority organics), 030303 (priority organics), 030304 (priority organics), 030305 (priority organics), 030401 (priority organics), 030402 (priority organics), 081001 (nutrients), 081402 (organic enrichment/low DO), 081609 (organic enrichment/low DO), 080901 (phosphorus), and 080903 (phosphorus) were not accompanied with information or data that supports a delisting decision for the public to review.

Gulf Restoration Network **Comment: 001/0004** **Response: 001/0004**

Given that no supporting data or information was provided, or in any way referenced in the federal register notice for these water segment/pollutant combinations, the GRN can only assume that this data does not exist. Consequently, the justification for the delisting of the aforementioned segment/pollution combinations is unacceptable, and EPA Region 6 cannot approve the delistings. Until new information or data that supports these delistings is made available to the public for review, with an adequate opportunity for the public to comment, these segments should be considered impaired and TMDLs should be developed to address these pollutant concerns.

Gulf Restoration Network **Comment: 001/0005** **Response: 001/0005**

The only data sources that were included on EPA's website to support the delistings proposed by EPA were (1) ammonia data taken for three different waterbodies and (2) a draft report of Fish Tissue Dioxin Investigation for Dugdemona River. This information does not represent all the available information concerning levels of dioxin and priority organics in waters in the Calcasieu Basin. In particular, the following sources of data need to be considered before EPA approves these delistings:

(1) Data and information from EPA's own website, which document the severity of contamination from priority organics in subsegments 030302, 030303, 030304, and 030305 ;

(2) Studies undertaken by the Agency for Toxic Substances and Disease Registry, which analyze dioxin levels in seafood in the Calcasieu River Basin;

(3) Studies undertaken by the Environmental Protection Agency, in coordination with other federal and state agencies, which analyze the level of contamination in sediments in the Calcasieu River and surrounding watershed ; and

(4) The National Coastal Condition Report, which documents problems with contaminated sediment, benthos, and fish in the Louisiana's coastal rivers and estuaries.

Gulf Restoration Network **Comment: 001/0006** **Response: 001/0006**

Before EPA can approve the delisting of any stream segment for priority organics, non-priority organics, or other organics, sediment and fish tissue sampling data need to be collected and considered. Because many of these organics are hydrophobic, they do not easily dissolve in the water column. Instead, these pollutants tend to build up in the sediment and, under certain conditions, may become available to be uptaken by fish and other aquatic life, as well as the humans who consume this fish. Thus, contamination of sediment and fish by priority organics is a serious health threat that must be considered when evaluating the quality of a water environment. The GRN strongly advises EPA to only delist waters for hydrophobic pollutants (e.g. priority organics and heavy metals such as mercury) that have been tested and proven clean for water column quality, sediment quality, and fish tissue quality. Without a

comprehensive approach to water ecosystem sampling, many waters that pose significant public health threats will be removed from the 303(d) list and not receive the cleanup they deserve.

Gulf Restoration Network **Comment: 001/0007** **Response: 001/0007**

The state of Louisiana has not yet adopted numeric criteria that identify acceptable levels of nutrients (i.e., nitrates, phosphorus, and ammonia) in waterbodies throughout the state. Currently, only narrative nutrient criteria are incorporated in Louisiana's Water Quality Standards. This narrative standard is difficult to translate to numeric criteria that fully protect the designated uses of the waters of the state. The GRN, therefore, requests EPA to deny delistings for waters listed as impaired by high nutrient levels (including water segments 030301 (ammonia), 080102 (ammonia), 080901 (ammonia), 080905 (ammonia), 081001 (nutrients), 080901 (phosphorus), and 080903 (phosphorus)), until numeric nutrient criteria are adopted by the state in 2004, and adequate nutrient water quality data are collected that indicate these criteria are being met.

Louisiana Department of Environmental Quality **Comment: 002/0001** **Response: 002/0001**

It is inappropriate to use non-regulatory "targets" (sediment guidelines or others) as end-points for TMDLs.

Louisiana Department of Environmental Quality **Comment: 002/0002** **Response: 002/0002**

Incorrect flows were applied in some areas (e.g. harmonic mean was used rather than tidal flows).

Louisiana Department of Environmental Quality **Comment: 002/0003** **Response: 002/0003**

EPA's use of non-clean technique metals data is inappropriate. Metals data from the Superfund project should not have been used at all since clean sampling and analysis techniques were not used. When EPA did use these data, they were often not applied correctly. For example, Louisiana instream criteria are based on dissolved metals; yet EPA used both dissolved and total metals data to compare to the dissolved criteria. EPA's use of applying total metals to dissolved metals criteria in order to determine exceedances is flawed.

Louisiana Department of Environmental Quality **Comment: 002/0004** **Response: 002/0004**

LDEQ Ambient Network data should not have been used to justify TMDLs for the same reason as the Superfund data. The available LDEQ data were not collected and analyzed using clean techniques. LDEQ uses these data as a screening tool to target more intensive sampling and analysis using clean techniques, not for justifying and developing TMDLs.

Louisiana Department of Environmental Quality **Comment: 002/0005** **Response: 002/0005**

It is inappropriate to assume industries discharge a pollutant when it has not been included in their permit. EPA knows that when effluent limits are determined for each facility based on a number of factors, including the type of facility, types of waste-streams and effluent data submitted during the application process.

Louisiana Department of Environmental Quality **Comment: 002/0006** **Response: 002/0006**

Monitoring schedules and locations for the different pollutants have been recommended for Louisiana throughout the document; Louisiana will continue its ambient and intensive monitoring programs according to established schedules and agreements.

Louisiana Department of Environmental Quality **Comment: 002/0007** **Response: 002/0007**

DEQ's comments concerning specific TMDLs will indicate that EPA has made numerous errors in listing dischargers in the TMDL.

Louisiana Department of Environmental Quality **Comment: 002/0008** **Response: 002/0008**

The use of sediment data to assess for water quality use impairment and need for TMDLs has no precedent. Neither LDEQ nor EPA has promulgated sediment criteria. Therefore, the use of non- regulatory sediment guidelines and screening values, as Region 6 has done in this report, is not appropriate in assessing for water quality impairment or determining the need for TMDLs.

Louisiana Department of Environmental Quality **Comment: 002/0009** **Response: 002/0009**

Many of these TMDLs are based on models using historical water quality data gathered at a single or small number of locations rather than survey data gathered at sites spaced throughout the waterbody.

Louisiana Department of Environmental Quality Comment: 002/0010 Response: 002/0010

The hydraulic information used was generally an average value or estimated value, not taken at the same time as the water quality data. The calibrations are inadequate due to the lack of appropriate hydrologic data and the paucity of water quality data.

Louisiana Department of Environmental Quality Comment: 002/0011 Response: 002/0011

LDEQ has reviewed the TMDLs published by EPA on March 29, 2002. One particularly troubling issue for LDEQ is the fact that numerous dischargers that should have been included in these TMDLs were not. This indicates a complete disregard for the discharger inventory LDEQ provided to EPA. At the least, the TMDLs should acknowledge all facilities present in the covered watershed(s) and present the decisions for including or not including them in the TMDL.

Louisiana Department of Environmental Quality Comment: 002/0012 Response: 002/0012

Bayou Verdine

Both of the listed dischargers, Conoco (LA 0003026) and Vista (LA0003336), currently discharge their process wastewater directly to the Calcasieu River and not to Bayou Verdine. Both facilities discharge some stormwater to Bayou Verdine. PPG discharges once-through non-contact cooling water, wash-down water, cooling tower blowdown, and stormwater to Bayou Verdine. Lyondell Chemical Worldwide discharges stormwater to Bayou Verdine.

Louisiana Department of Environmental Quality Comment: 002/0013 Response: 002/0013

Bayou d'Inde The TMDL lists 5 industrial dischargers:

PPG Industries	LA0000761
Firestone Synthetic Rubber and Latex	LA0003824
Certainteed Products Corp	LA0041025
Equistar Chemical	LA0069850
Westlake Polymers	LA0071382

Discharging industries of significance, including the 5 above, are:

Air Liquide	LA0051730	Air separation
Westlake Polymers	LA0071382	Polyethylene mfg.
PPG Industries	LA0000761	Organic & inorganic chemicals
Equistar Chemical	LA0069850	Ethylene & propylene production
Firestone Synthetic Rubber and Latex	LA0003824	Synthetic rubber and latex
Certainteed Products Corp.	LA0041025	PVC product mfg.
Citgo Petro Corp.	LA0005941	Petroleum Refining
Praxair Inc	LA0100099	Hydrogen gas mfg.
Air Liquid	LA0053708	Cryogenic air separation
Tessenderlo Kerley Inc.	LA0047058	Compressed hydrogen production
W-H Holdings Inc.	LA0105155	Warehousing and wash racks
Cetco	LA0101869	Env remediation and sand blasting
Denmar Enterprises	LA0108596	Heavy equipment washing & refurbishing

Louisiana Department of Environmental Quality Comment: 002/0014 Response: 002/0014

Contraband Bayou

The TMDL lists:

City of Lake Charles WWTP "C"	LA0036366
City of Lake Charles WWTP "B"	LA0036358

Significant dischargers are:

City of Lake Charles WWTP "B" and "C"	LA0036366	Municipal wastewater treatment
City of Lake Charles Center St East WTP	LAG380006	

City of Lake Charles Center St West WTP	LAG380008	
City of Lake Charles McNeese St WTP	LAG380009	
City of Lake Charles Chennault WTP	LAG380009	
McNeese Univ. Farm Labs	LA0104850	Meats, equine, & breeding labs

The discharge from Plant B has been routed to Plant C and the permit voided.

Louisiana Department of Environmental Quality **Comment: 002/0015** **Response: 002/0015**

Calcasieu River and Ship Channel – Saltwater Barrier to Moss Lake

The TMDL lists:

WR Grace	LA0001333
Basell USA	LA0003689
Lyondell Chemical World Wide	LA0005347
Citgo Petroleum	LA0005941
City of Lake Charles WWTP "A"	LA0036340
Calcasieu Refining	LA0052370
City of Sulphur WWTP	LA0067083
Westlake Petrochemicals	LA0082511
Westlake Styrene	LA0087157
Westlake Polymers	LA0103004

The TMDL list is complete except for the two facilities that were mistakenly put in Bayou Verdine, and one facility mistakenly put in Segment 030401:

Condea Vista Chemical	LA0003336
Conoco Lake Charles Refining	LA0003026
Louisiana Pigment	LA0080829

Louisiana Department of Environmental Quality **Comment: 002/0016** **Response: 002/0016**

Lake Charles

The TMDL listed no dischargers. Our files include one significant discharger for non-contact cooling water only: Holnam Inc., FKA Ideal Cement, LA0003956.

Louisiana Department of Environmental Quality **Comment: 002/0017** **Response: 002/0017**

Lower Calcasieu Estuary and Ship Channel

The TMDL lists:

Louisiana Pigment	LA0080829
Lake Charles Carbon	LA0003735

Significant dischargers are:

Cameron Parish Sewerage District 11	LA0039136
Reynolds Metals (Lake Charles Carbon)	LA0003735
Trunkline LNG	LA0055522

Louisiana Pigment is in Segment 030301, discharging to the Calcasieu River.

Louisiana Department of Environmental Quality **Comment: 002/0018** **Response: 002/0018**

The use of sediment data to assess for water quality use impairment and need for TMDLs has no precedent. In using this approach, Region 6 has gone beyond the regulatory guidance under the TMDL regulations. While the Louisiana general water quality standards state that no substances shall be present in toxic amounts in water and sediments underlying said waters, they contain promulgated criteria only for water. The criteria for water are used to protect sediments. Neither LDEQ or EPA have promulgated sediment criteria therefore the use of non regulatory sediment guidelines or screening values as Region 6 has done in this report is not appropriate in assessing for water quality impairment or determining the need for TMDLs.

Louisiana Department of Environmental Quality Comment: 002/0019 Response: 002/0019

The present status of the particular guidelines and screening values used in the report further support our contention that they are inappropriate for making assessments of Louisiana water quality standards or determining the need for TMDLs. As noted in the report, the EPA "Equilibrium Partitioning Sediment Guidelines (ESGs)" are "draft". They are draft guidelines only and have been in various stages of development for many years resulting in changing values and approaches. Although based on scientific studies, if this concept was appropriate for use in assessing Louisiana water quality standards and determining the need for TMDLs, EPA would have made ESGs final by now. But as noted in the report, they are still draft and under development and not appropriate or justified as a regulation for determining water use impairment or need for TMDLs.

Louisiana Department of Environmental Quality Comment: 002/0020 Response: 002/0020

The use of the National Oceanic and Atmospheric Administration's (NOAA) Effects Range Medium (ERM) sediment screening values is equally problematic. The ERM concept was developed from a wide range of sediment toxicity data from a variety of habitats across the nation but has not reached the proper level of scientific or regulatory documentation or acceptance to justify incorporation as a regulation for use in assessing water quality standards or justifying a TMDL. Indeed NOAA stresses in their publications developing ERMs that both Effects Range Low (ERL) and ERM values "are not to be construed as NOAA standards or criteria". And it might equally be stated that they not be construed as LDEQ or EPA standards or criteria. In fact EPA has recognized this fact by denoting in the recently released Coastal Condition Report that, "these guidelines are still considered experimental and several publications have questioned their reliability in assessing sediment toxicity". It is obvious therefore that the NOAA ERL/ERM screening values are just that, screening values, and are to be used only as a screening tool for evaluating and comparing sediment concentrations between habitats in different regions of the nation and not as a definitive assessment of aquatic toxicity, water use attainment or the need for developing a TMDL.

Louisiana Department of Environmental Quality Comment: 002/0021 Response: 002/0021

There are further concerns with using sediment concentrations for determining water use impairment and the need for TMDLs. Most contaminants found in sediments today relate to historical conditions and discharges and are not representative of current discharge conditions. To develop expensive TMDLs for chemicals that are no longer discharged or no longer discharged into specific waterbodies is inappropriate, unjustified and a waste of valuable resources. We believe that is the case with most of the sediment chemicals EPA alleges are causing water use impairment and require TMDLs in the Lower Calcasieu Basin and Ship Channel.

Louisiana Department of Environmental Quality Comment: 002/0022 Response: 002/0022

The state has listed contaminated sediments in its 305(b)/303(d) process for only Bayous Verdine and d'Inde. The listings were done specifically for the historical problems with the chemicals hexachlorobenzene (HCB), hexachlorobutadiene (HCBD) and polychlorinated biphenyls (PCBs), which were reflected in an existing fish advisory, and not for the chemical substances in sediment as listed in the TMDL report.

Louisiana Department of Environmental Quality Comment: 002/0023 Response: 002/0023

Controls to reduce or eliminate these discharges have since been put in place. The LDEQ has not determined that the concentrations of DDT, methoxyclor, PAHs or any metallic ions are high enough in sediments to document water use impairment or to justify a TMDL.

Louisiana Department of Environmental Quality Comment: 002/0024 Response: 002/0024

As stated previously, the use of the sediment guidelines and screening values proposed in the report is completely inappropriate and not scientifically defensible for determining water use impairment of Louisiana waterbodies or to justify the need for TMDLs in Louisiana waterbodies. We further protest the use of draft and experimental sediment guidelines and screening values to determine water quality impairment and then use the water quality standard for TMDL development when the water quality standard is attained in the waterbody. This is certainly without precedent and totally unjustified.

Louisiana Department of Environmental Quality Comment: 002/0025 Response: 002/0025

Also, any listing of contaminated sediments and toxicity for the Calcasieu Ship Channel, subsegment 030301, based on LDEQ alleged data is in error. A complete check of LDEQ assessment records for 030301 clearly shows that EPA listed this subsegment for contaminated sediments and toxicity on the 303(d) list in error and it should be delisted. Documentation is submitted with these comments.

Louisiana Department of Environmental Quality Comment: 002/0025a Response: 002/0001
Once again, the use of NOAA ERM experimental screening values is totally inappropriate to determine the need for TMDLs in the Calcasieu Ship Channel.

Louisiana Department of Environmental Quality Comment: 002/0025b Response: 002/0025b
And it is equally unjustified to use the water quality criterion for developing a TMDL for a chemical or metal such as Region 6 has done with mercury when the mercury water quality criterion is met in the waterbody.

Louisiana Department of Environmental Quality Comment: 002/0026 Response: 002/0026
Subsegment 030301 was listed on the Court Ordered § 303(d) list for Cu and Hg in the water column and unspecified metals in sediments. It was not listed for Pb in the water column. Therefore, Pb should be removed from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0027 Response: 002/0027
Ambient water quality data for metals collected in 1997 and 1998 by LDEQ was found to be fully supporting of freshwater criteria for Cu, Hg, and Pb, and not supporting marine criteria for Cu. However, clean-technique metals data previously submitted by LDEQ was found to be fully supporting both freshwater criteria and marine water criteria for Cu. Therefore, EPA Region 6 should remove Cu and Hg from the § 303(d) list, and remove Cu, Hg, and Pb from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0028 Response: 002/0028
Subsegment 030303 was not listed on the Court Ordered § 303(d) list for any metals in the water column nor for sediment contamination with metals. Therefore, Cu should be removed from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0029 Response: 002/0029
Ambient water quality data for metals collected by LDEQ was found to be fully supporting of both freshwater and marine criteria for Cu. Therefore, EPA Region 6 should remove Cu from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0030 Response: 002/0030
Subsegment 030304 was listed on the Court Ordered § 303(d) list for Cu, but not for Hg. In addition, the subsegment was not listed for unspecified metals in sediments. Therefore, Hg should be removed from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0031 Response: 002/0031
Subsegment 030305 was not listed on the Court Ordered § 303(d) list for any metal. In addition, the subsegment was not listed for unspecified metals in sediments. Therefore, Cu should be removed from considered in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0032 Response: 002/0032
Ambient water quality data for metals collected by LDEQ in 1999 was found to be fully supporting of freshwater and marine criteria for Cu. Therefore, EPA Region 6 should remove Cu from consideration in the Calcasieu Toxics TMDL.

Ambient water quality data for metals collected by LDEQ was found to be fully supporting of freshwater and marine criteria for both Cu and Hg. Therefore, EPA Region 6 should remove Cu and Hg from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0034 Response: 002/0034
Subsegment 030306 was listed on the Court Ordered § 303(d) list for unspecified metals and unspecified metals in sediments. However, ambient water quality data for metals collected by LDEQ in 1999 was found to be fully supporting of freshwater and marine criteria for Hg. Therefore, EPA Region 6 should remove Hg from consideration in the Calcasieu Toxics TMDL. Nickel was found to be fully supporting of freshwater criteria but not supporting marine criteria.

Louisiana Department of Environmental Quality Comment: 002/0035 Response: 002/0035

Subsegment 030901 was listed on the Court Ordered § 303(d) list for Cu in the water column and for unspecified metals in sediments. It was not listed for Hg or Ni in the water column. Therefore, Hg and Ni should be removed from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0036 Response: 002/0003

Ambient water quality data for metals collected by LDEQ from 1997-1999 was found to be fully supporting of freshwater criteria for Cu, Hg, and Ni, and not supporting marine criterion for Cu. However, clean-technique metals data previously submitted by LDEQ was found to be fully supporting both freshwater and marine criteria for Cu. Therefore, EPA Region 6 should remove Cu, Hg, and Ni from the § 303(d) list and from consideration in the Calcasieu Toxics TMDL.

Louisiana Department of Environmental Quality Comment: 002/0037 Response: 002/0037

LDEQ's 2000 § 305(b) report found no metals criteria exceedances and, therefore, no metals were listed for any of the six water bodies in question in EPA Region 6's Calcasieu Toxics TMDL. A second review of metals data for the Calcasieu Estuary was conducted at this time for comments regarding the Calcasieu Toxics TMDL. Ambient water quality data collected by LDEQ, along with clean-technique metals data previously submitted by LDEQ came to the same conclusion as that reached for Louisiana's 2000 § 305(b) report. This review has shown that five of six water bodies considered by the Calcasieu Toxics TMDL (Upper Calcasieu (030301), Prien Lake (030303), Moss Lake (030304), Contraband Bayou (030305) and Bayou d'Inde (030901)) are fully supporting both fresh and marine criteria for the metals shown in Tables 1 and 2. The remaining water body, Bayou Verdine is not supporting marine criteria for nickel.

Louisiana Department of Environmental Quality Comment: 002/0038 Response: 002/0003

LDEQ believes that EPA Region 6's use of metals data from their Superfund project is inappropriate because clean sampling and clean lab analysis techniques were not used during data collection and analysis. Further, use of EPA's data was incorrect because Louisiana instream criteria are based on dissolved metals analysis; yet EPA used both dissolved and total metals data to compare to the dissolved metals criteria. As a result, not only is EPA's use of non-clean technique metals data inappropriate, EPA's use of applying total metals data to dissolved metals criteria in order to determine exceedances is flawed.

C-K Associates, Inc. Comment: 003/0001 Response: 003/0001

The Louisiana Department of Environmental Quality's (LDEQ's) 303(d) list is currently being updated by the LDEQ to accurately identify waterbodies and pollutants of concern which require inclusion on this list. Historical data used for this task in the past has been determined to be "not so" accurate and representative (i.e., metals data which did not employ field and laboratory "clean technique" procedures or analytical laboratory methods which were not used to achieve a certain minimum quantification level) of actual ambient conditions whereby waterbodies and/or pollutants (i.e., trace metals, organics) were placed on this list. This task has not been adequately completed and it is our opinion that calculating TMDLs before revision of the 303(d) list, for which some waterbodies and pollutants of concern may not all together be needed, is inappropriate.

C-K Associates, Inc. Comment: 003/0002 Response: 003/0002

The State's 303(d) list needs to be updated before TMDLs are calculated. TMDLs were calculated for hexachlorobutadiene, PCBs, tetrachloroethane, bromoform, and hexachlorobenzene solely on the fact that they are on the 303(d) list even though available data indicates that the constituent is not present in the water body or that an inadequate analytical method was used which did not achieve a certain minimum quantification level.

C-K Associates, Inc. Comment: 003/0003 Response: 003/0003

Recent studies have shown that statewide criteria for metals are inappropriately stringent for rivers and streams in southern Louisiana. These streams naturally exhibit low, but significant background, ambient concentrations of metals as a result of natural geochemical conditions in the watershed.

C-K Associates, Inc. Comment: 003/0004 Response: 003/0004

The derivation of dissolved metals criteria set forth in the Louisiana Water Quality Standards (WQS) result in inappropriately and unrealistically low criteria for the protection of aquatic life because they do not account for the site-specific physical and chemical characteristics of the effluent and receiving water which determines the fate of

the dissolved metal.

C-K Associates, Inc. **Comment: 003/0005** **Response: 003/0005**

In order for a metal to exhibit a toxic effect on aquatic organisms, the metal must be present in a bioavailable state. Certain water chemistry factors can change the partitioning of metal between the bioavailable and the non-bioavailable states, thereby affecting the toxicity of the metal. Relative to synthetic laboratory water, ambient receiving stream waters and wastewater effluents have significantly more complex water chemistries and therefore, have a greater capacity to assimilate dissolved metals, thus the potential to reducing the bioavailable concentration of a metal. The effect of this is a reduction in the toxicity of the metal in ambient receiving stream waters and wastewater effluents relative to synthetic laboratory water.

The EPA has recognized this phenomenon and published a guidance manual entitled Interim Guidance on Determinations and Use of Water-Effect Ratios for Metals, EPA 823-94-001, February 1994 in order for site-specific criteria to be developed and implemented that protect water quality. The effect of this is to raise statewide criteria to realistic levels based on a sound, scientific approach. Since the TMDLs calculated in this "draft" report were based on existing criteria, we believe it is prudent to evaluate existing criteria and modify criteria determined to be inappropriate and then calculate TMDLs rather than calculate TMDLs based on inappropriate criteria values.

C-K Associates, Inc. **Comment: 003/0006** **Response: 003/0006**

The methodology to determine pollutants of concern included several sources. Some of these sources are not appropriate and many valuable sources are not included which indicates a lack of research by the contractor. Specifically, C-K Associates, Inc. conducted a Trace Metals "Clean Technique" Sampling and Laboratory Analysis Study on Bayou d' Inde, Bayou Verdine and the Calcasieu River in 2000. This report including the data were submitted to the LDEQ in March 2001 and subsequently reformatted by the LDEQ and submitted to the EPA, Region 6 in August 2001. This study consisted of the collection and evaluation of "conventional" and "clean technique" data which were collected "side-by-side" in accordance with the EPA guidance manual Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, EPA 821-R95-034, April 1995. Evaluation of the data indicated "clean technique" results were substantially lower than the "conventional" results. The ambient concentrations of dissolved copper obtained using "clean technique" monitoring clearly demonstrated that concentrations on Bayou d'Inde and the Calcasieu River did not exceed, or closely approach the marine numerical criteria established by the Louisiana WQS for copper.

C-K Associates, Inc. **Comment: 003/0007** **Response: 002/0003**

The findings of this study concluded that "clean technique" results are more technically accurate and precise than the "conventional" results and therefore more representative of the actual copper levels in Bayou d'Inde, Bayou Verdine, and the Calcasieu River. Based on this data, previous assessment of these waterbodies have been inaccurate, and therefore these waterbodies should be de-listed from the State's 303(d) list and no TMDL is necessary for copper on these waterbodies.

C-K Associates, Inc. **Comment: 003/0008** **Response: 003/0008**

The TMDL calculation method employed a mass-balance approach. The narrative section and appendices do not provide adequate documentation of where input variables came from or how calculations were performed.

C-K Associates, Inc. **Comment: 003/0009** **Response: 003/0009**

Louisiana does not have an aquatic life criterion for total copper as indicated in Table A-1. The aquatic life criterion for marine waters are expressed as a dissolved metal concentration (see LAC 33:1X.1113, Table 1).

Louisiana Chemical Association **Comment: 004/00.5** **Response: 004/00.5**

Many of the following comments reflect serious concerns with the extreme lack of scientific rigor in EPA's TMDL process. Like concerns have been identified and discussed in previous high-level scientific advisory groups, most notably in Assessing the TMDL Approach to Water Quality Management (National Research Council, National Academy Press, 2001) (the "NRC Report"). LCA strongly suggests that EPA incorporate the recommendations of this and other evaluations to assure that TMDL decisions are made on a sound technical basis.

Louisiana Chemical Association **Comment: 004/0001** **Response: 004/0001**

LCA submits that it is entirely inappropriate for EPA to establish TMDLs for pollutants which were not identified in the 303(d) list as causing or expected to cause violations of the applicable water quality standards. In particular,

LCA submits that EPA inappropriately established TMDLs for pollutants which were not on the 303(d) list but for which EPA asserts there have been water quality criterion exceedances, ERM exceedances, ESG exceedances, fish advisories, etc. For example, as indicated below, EPA has established TMDLs for certain water quality limited segments for pollutants not on the 303(d) list.

Louisiana Chemical Association **Comment: 004/0002** **Response: 004/0002**

The State of Louisiana has primacy in determining whether to add waters to the state's 303(d) list, and the state should be given the opportunity to review any data relied upon by EPA to determine (i) whether the 303(d) list should be amended to include the above pollutants or (ii) whether the data show that no impairment due to these pollutants exists. By reproposing TMDLs for pollutants not on the state's 303(d) list, EPA has impermissibly usurped state authority. See, Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d), and 40 C.F.R. 130.7.

Louisiana Chemical Association **Comment: 004/0003** **Response: 004/0003**

LCA further submits that to the extent EPA desires to establish TMDLs for pollutants not included on the current 303(d) list, EPA should first establish a revised 303(d) list pursuant to the authorities referenced in the previous paragraph. EPA should not unilaterally establish TMDLs for water quality limited segments absent first revising the 303(d) list to add the pollutants of concern.

Louisiana Chemical Association **Comment: 004/0004** **Response: 004/0001**

Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d), allows the state (or EPA in the case where the state has failed to act) to establish TMDLs only where technology based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters. In short, TMDLs are authorized only where the state water quality standards are not being met because technology based controls are insufficient. EPA is simply not authorized to establish a TMDL for a pollutant where there is no evidence of impairment. There is no evidence of impairment for a great number of pollutants for which EPA has proposed TMDLs for the Calcasieu Estuary.

Louisiana Chemical Association **Comment: 004/0005** **Response: 004/0005**

Where EPA's investigation of a pollutant shows that the state water quality standard for that pollutant is not being exceeded, then EPA must delist that waterbody for that pollutant on the 303(d) list. Indeed, EPA clearly has proposed to delist 20 waterbody/pollutant combinations in the Calcasieu Estuary and Ouachita River Basin for exactly that reason. See, 67ed. Reg. 15176, March 29, 2002.

Louisiana Chemical Association **Comment: 004/0006** **Response: 004/0002**

As the above pollutants were not on the 303(d) list, EPA was not required by law to develop TMDLs for such pollutants. See, 40 C.F.R 130.7(c) and (d). For EPA to develop TMDLs for pollutants not on the current 303(d) list, as here, is arbitrary, capricious, and legally impermissible under the Clean Water Act and regulations promulgated thereunder, as referenced above.

Louisiana Chemical Association **Comment: 004/0007** **Response: 004/0007**

EPA has proposed TMDLs for several of the pollutants based on the fact that the detection limit for such pollutants is lower than the relevant water quality standard. This is an inappropriate interpretation of the Clean Water Act. TMDLs are warranted only when there is evidence that a discharge has a reasonable potential to contribute to exceedance of a standard. It is not appropriate for EPA to adopt a TMDL simply because it presumes that substances do exist in the water and presumes further that these will be at levels above the standards. EPA cannot presume impairment without scientific basis. EPA should withdraw TMDLs where there is no detection of such pollutants using reliable data (such as clean and ultra-clean data where warranted). EPA should rely instead on 40 CFR 122.44(d)(1)(i) and (vi)(A) and (B) which require the permitting authority to impose water quality based effluent limits where the discharges from and individual facility have "reasonable potential" to exceed a state water quality standard. Under these rules, if the permitting authority has reason to believe that a pollutant will contribute to an exceedance of the standard, a site-specific limit may be set. This existing rule is fully protective of water quality without the existence of a TMDL.

Louisiana Chemical Association **Comment: 004/0008** **Response: 004/0008**

Although LDEQ indicated that HCB, HCBD and PCBs should remain on the 303(d)list, this recommendation was solely due to the existence of a fish consumption advisory from the Louisiana Department of Health and Hospitals. There is no current evidence of impairment of Bayou d'Inde for these parameters even though the Department of

Health and Hospitals is protectively continuing the advisory. In fact, water sampling has not detected HCB or HCBD for over 4 years.

Louisiana Chemical Association **Comment: 004/0009** **Response: 004/0009**

Further, PCBs are banned from manufacture and most uses under the federal Toxic Substances Control Act, so such regulations provide reasonable assurance that this pollutant will not be an ongoing issue. TMDLs, which address ongoing discharges, are simply unwarranted as they have no impact on water quality.

Louisiana Chemical Association **Comment: 004/0010** **Response: 004/0010**

EPA proposed TMDLs for metals without performing data gathering using clean techniques. This is an invalid scientific approach when EPA is clearly aware that use of data gathered using clean techniques would likely demonstrate that no impairment exists.

Louisiana Chemical Association **Comment: 004/0011** **Response: 004/0011**

On August 20, 2001, LDEQ provided "clean techniques" sampling data to EPA demonstrating that there were no exceedances of the aquatic copper criteria in Bayou D'Inde, Bayou Verdine, and the Calcasieu Ship Channel. (The original of this submittal is in EPA Region 6's files. LCA requests that EPA include the original submittal, or a copy thereof, in the official administrative record for this TMDL proceeding.) However, EPA's contractor apparently did not receive or did not consider this data for these waterbodies although similar data was used as a basis for delisting copper in other waterbodies. The data provided by LDEQ to EPA in August 2001 was developed from a report commissioned by PPG titled "A Final Report for Trace Metals "Clean Technique" Sampling and Laboratory Analysis, CK Associates, Inc., March 2001."

Louisiana Chemical Association **Comment: 004/0012** **Response: 004/0012**

EPA proposed TMDLs/WLAs for copper, mercury and nickel were based upon data collected and analyzed without use of "clean techniques." As noted above, data collected using clean techniques was already been provided to EPA by LDEQ in August 2001, but apparently was not considered in the study. This data showed that there is no exceedance of the aquatic copper criteria and that Bayou d'Inde should thus be delisted for copper. The "dirty" data used by the EPA contractor showed nickel detected above the criteria in less than 10% of the samples. In light of this data , Louisiana Water Quality Standards ("LWQS") indicate that clean techniques or ultra-clean techniques must be used when other data indicate that a criteria may be exceeded. LAC 33:IX.1113.C.6.f provides: The use of clean or ultra-clean techniques may be required to definitively assess ambient levels of some pollutants (e.g., EPA method 1669 for metals) or to assess such pollutants when numeric or narrative water quality standards are not being attained. Clean and ultra-clean techniques are defined in LAC33:IX.1105. The relevant definitions of "clean" and "ultra-clean" in LAC33:IX.1105 provide: Clean Techniques—those requirements (or practices for sample collection and handling) necessary to produce reliable analytical data in the microgram per liter (µg/L) or part per billion (ppb) range. Ultra-Clean Techniques—those requirements or practices necessary to produce reliable analytical data in the nanogram per liter (ng/L) or part per trillion (ppt) range.

Louisiana Chemical Association **Comment: 004/0013** **Response: 002/0003**

The aquatic criteria for copper and nickel are in the part per billion range while the aquatic criteria for mercury are in the part per trillion range. Thus, the data used by the EPA contractor to form the basis for the TMDLs for these pollutants are simply not considered to be reliable data to establish standards in these part per billion and part per trillion ranges. EPA's contractor should have collected additional data for these parameters using clean or ultra-clean techniques as specified by the LWQS because such data is "necessary to produce reliable analytical data" in the ranges established by the standards and the TMDLs. The failure to do so is inexplicable given that only clean or ultra-clean techniques data is considered by the scientific community (and the LWQS) to be the type of data that will support an actual wasteload allocation and the attendant economic burdens that will be imposed on discharging entities.

Louisiana Chemical Association **Comment: 004/0014** **Response: 004/0014**

With respect to mercury, EPA did not use ultra-clean techniques. Further, while EPA apparently detected mercury in the ambient water, it has not yet identified any exceedance of the chronic aquatic protection standard because it did not perform any fish testing. LDEQ's aquatic protection criteria requires fish testing for implementation. LAC 33:IX.1113 Table 3 note 11. EPA data developed in Phase II of the Calcasieu Estuary Superfund Study support LCA's conclusion that there is no exceedance of the aquatic protection criteria. Thus, the TMDL for mercury should

be withdrawn.

Louisiana Chemical Association **Comment: 004/0015** **Response: 002/0002**

EPA failed to use the correct flows for waterbodies that are tidally influenced. If a waterbody is tidally influenced, EPA must use the average or typical flow averaged over one tidal cycle irrespective of flow direction for dilution calculations. See, LAC 33:IX.1115, Table 2b. (For example, EPA did not use the average tidal flow for evaluation of human health criteria in Bayou D'Inde, even though Bayou D'Inde is tidally influenced.)

Louisiana Chemical Association **Comment: 004/0016** **Response: 004/0016**

The treatment of discharge data grossly over-estimated loadings in many cases by ignoring non-detected values in facilities' discharge monitoring reports and/or presuming that pollutants were present when "zero" values were reported for pollutant concentrations below the analyte method detection limit.

Louisiana Chemical Association **Comment: 004/0017** **Response: 004/0017**

EPA misused data from the LDEQ Ambient Water Quality Network. All "non-detects" ("ND"s) were ignored. In several instances, the majority of data entries were ND. Water quality criteria were compared to the mean of detects, only.

EPA misused data from the National Oceanic and Atmospheric Administration's Calcasieu database. All NDs were ignored. In several instances, the majority of data entries were ND. Water quality criteria were compared to the mean of detects, only.

Louisiana Chemical Association **Comment: 004/0019** **Response: 004/0019**

EPA may have inappropriately determined point source loadings. It is unclear whether EPA used permit limits or average reported monthly and maximum daily loads for each outfall and then summed the results by pollutant across each outfall. EPA states says both in the Executive Summary of the Draft Total Maximum Daily Load for Toxics for the Calcasieu Estuary (the "Draft TMDL Document"), p. ES2.

Louisiana Chemical Association **Comment: 004/0020** **Response: 004/0020**

Nothing in the Draft TMDL Document indicates which years of facility data were reviewed and why that time period was deemed sufficiently representative of normal, authorized plant operations.

Louisiana Chemical Association **Comment: 004/0021** **Response: 004/0021**

EPA may have inappropriately determined nonpoint source contributions and failed to consider reductions in nonpoint source loadings.

Louisiana Chemical Association **Comment: 004/0022** **Response: 004/0022**

The TMDL mass balance methodology used by EPA is overly simplistic, particularly for a system as hydraulically complex as the Calcasieu Estuary. Such complexity requires fate and transport modeling to generate scientifically acceptable TMDLs. This modeling should include hydrodynamics and water column/sediment pollutant interactions. EPA used a mass balance approach to model toxic pollutants in the Calcasieu Estuary system. The mass balance approach is most problematic for simulating compliance with water quality criteria that have a short-term exposure basis, e.g., acute and chronic aquatic life criteria. A mass balance across an entire surface water subsegment that is miles in length and contains islands and looping channels (e.g., the Upper Calcasieu Estuary and Ship Channel) is inadequate for demonstrating compliance with water quality criteria. The mass balance analysis is especially problematic for aquatic life criteria because temporal-spatial concentration differences must be properly simulated to assure that wasteload allocations are protective, but not overly so. The water quality criteria and implementation methods of the LDEQ are designed to assure that the standards are met at all places in the waterbody, but the TMDL approach used by EPA fails to accomplish this objective.

Louisiana Chemical Association **Comment: 004/0023** **Response: 004/0023**

The hydrodynamics of a surface waterbody determine the transport of chemicals and particulates. As described in the Draft TMDL Document, the Calcasieu Estuary, with its ship channel, islands, lakes, and tributary bayous has very complex hydraulics and pollutant transport. Rather than justifying the simplifying assumption of a mass balance, this complexity demands development of a hydrodynamic model that can adequately simulate the movement of water and transport of pollutants. The foundation of a TMDL is the ability to satisfactorily simulate the hydraulics of the surface waterbody of concern. This has not been done for the Proposed TMDLs.

Louisiana Chemical Association **Comment: 004/0024** **Response: 004/0024**

Another major deficiency of the TMDLs performed by EPA is the failure of the mass balance to account for pollutant fate including both water column-sediment interactions, partitioning of pollutants to solids, and processes such as biodegradation and volatilization. These processes are not considered in the Draft TMDL Document, but are necessary in order to develop technically supported wasteload allocations.

Louisiana Chemical Association **Comment: 004/0025** **Response: 004/0025**

EPA needs to correct errors in the segment flow.

Louisiana Chemical Association **Comment: 004/0026** **Response: 004/0026**

EPA needs to correct errors in facility outfall flow..

Louisiana Chemical Association **Comment: 004/0027** **Response: 004/0027**

EPA needs to substitute statistically valid estimates of facility flows for all stormwater driven TMDL mass balance calculations. EPA's method for estimating facility maximum discharge (for use with chronic toxicity pollutant of concern ("POC") TMDLs) is arbitrary and does not reflect reasonable, statistically-based estimates. Maximum flows are associated with stormwater discharges. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate facility flow estimates for stormwater events.

Louisiana Chemical Association **Comment: 004/0028** **Response: 004/0028**

Point Source Flow Information. EPA's information on the location of several major point-source discharge outfalls contain numerous significant errors. These errors include:

Concoco--primary outfalls have been moved to the Calcasieu Ship Channel (Segment 030301).

Sasol North America, Inc. (formerly CONDEA Vista)--permit being finalized to move primary outfalls to the Calcasieu Ship Channel (Segment 030301).

Citgo--outfalls for CitCon portion of operations (001, 002, 012) to Bayou D'Inde (Segment 030901) were not included.

Lyondell--stormwater Outfalls 025, 026, and 032 to Bayou Verdine (Segment 030306) were not included.

PPG--Outfall 002 to Calcasieu Ship Channel (Segment 030301) was not included.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary outfalls to ensure that they are located on the proper segment.

Louisiana Chemical Association **Comment: 004/0029** **Response: 004/0026**

EPA's estimates of mean flow for most major point-source discharge outfalls contain numerous significant errors. These errors include:

Citgo Calcasieu Ship Channel (Segment 030301) discharge--off by a factor of 5.

Lyondell Calcasieu Ship Channel (Segment 030301) discharge--off by a factor of 4.

PPG Bayou D'Inde (Segment 030901) discharge--off by a factor of 10.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of mean flows for each segment.

Louisiana Chemical Association **Comment: 004/0030** **Response: 004/0030**

EPA's estimates of average maximum flow for most major point-source discharge outfalls contain numerous significant errors. EPA's estimates of maximum flow contain similar errors. Since these errors reflect only a partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of maximum flows for each segment.

Louisiana Chemical Association **Comment: 004/0031** **Response: 004/0031a**

EPA should determine discharge maximum flows for use in chronic toxicity TDMLs using a statistically valid approach. EPA's estimate of average monthly maximum discharge flow is arbitrary. A statistically valid representation of maximum flow for an appropriate return period should be determined. This is particularly important since a significant portion of some facilities' loads may be associated with stormwater discharges.

Louisiana Chemical Association **Comment: 004/0032** **Response: 002/0001**

Pollutants on the POC list that have no numeric criteria in Table 1 of LAC 33:IX.1131 have no legal status for a TMDL and should not be used as targets. Where a narrative standard is the basis for identification of a designated use impairment (i.e., inclusion of a pollutant on the 303(d) list), then EPA has the obligation to develop a scientifically-supported, site-specific numeric water quality criterion for each and all pollutants that can be correlated to the impairment. It is unacceptable to use pollutant concentrations presented in guidance as TMDL targets, because these are not water quality standards and they have not been demonstrated to be the cause of toxicity at any specific location.

Louisiana Chemical Association **Comment: 004/0033** **Response: 004/0033**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" copper. LDEQ (in a letter to EPA dated August 20, 2001) provided information for delisting of copper from the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901).

Louisiana Chemical Association **Comment: 004/0034** **Response: 004/0034**

LDEQ (in a letter to EPA dated October 10, 2001) provided information clarifying the listings of "priority organics" and "non-priority organics" for the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901), and other segments. Based on this information LDEQ stated that the only POCs which are the suspected cause of waterbody impairment are: Hexachlorobenzene, Hexachlorobutadiene, and PCBs for Bayou D'Inde (only). LDEQ stated that no other use impairments for organic POCs have been documented. LDEQ (in the same letter to EPA dated October 10, 2001) provided information clarifying the listings of "other inorganics" for Bayou D'Inde (030901). LDEQ stated that this listing was for general information purposes and not a listing for a specific parameter.

Louisiana Chemical Association **Comment: 004/0035** **Response: 004/0035**

Notwithstanding the above, EPA has sought to select POCs for these "categorical" impairments by evaluating information from several studies of the Calcasieu Estuary area which were not designed to support TMDL determinations. In the Draft TMDL Document, EPA states that data from the following seven reports were reviewed and evaluated to identify POCs:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou D'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996.

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of the Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

In each case, these reports were the result of limited water and sediment quality investigations that were intended to focus on specific legacy contamination issues. These studies have a number of limitations which render them unsuitable for use in identifying TMDL POCs:

The sampling schemes--locations, depths, compositing, etc.--of these studies were primarily designed to evaluate known or suspected areas of contamination (i.e., "hot spots") within segments. The studies were not designed to provide, and do not provide, a statistically representative set of data for the respective segments. Absent a statistically valid sampling scheme (e.g., random sampling or grid sampling), the findings of POCs above reference levels is only indicative of localized contamination in the specific areas of investigation.

Louisiana Chemical Association **Comment: 004/0037** **Response: 004/0037**

EPA should eliminate selection of POCs solely based on localized "hot spot" sediment data:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Louisiana Chemical Association **Comment: 004/0038** **Response: 004/0038**

The LDEQ information referred to under Comment 7.c. above--combined with the absence of data showing presence in segment water or sediment above reference levels--should be sufficient grounds to delist the following POCs:

Phenol, Bayou Verdine (030306)

Bromoform, Bayou D'Inde (030901)

1,1,2,2-Tetrachloroethane, Bayou D'Inde (030901)

Louisiana Chemical Association **Comment: 004/0039** **Response: 002/0003**

Water and sediment quality data in the studies relied upon by EPA were not developed using consistent data quality objectives appropriate for a TMDL process. The reference levels for POCs requires very low detection limits. There is no indication that the above studies used appropriate field and laboratory techniques necessary to assure the quality of these results, particularly a reasonable minimization of false positives at the reference level.

Louisiana Chemical Association **Comment: 004/0040** **Response: 004/0040**

In the Draft TMDL Document, EPA does not address whether the above studies relied upon by EPA found the POCs under conditions consistent with application of the reference level--such as those relevant to POC fate, mobility, chemical form/stability, bioavailability, and biotoxicity.

Louisiana Chemical Association **Comment: 004/0041** **Response: 004/0041**

Water quality references levels are for dissolved concentrations and EPA should be evaluating only results for dissolved concentrations of POCs.

Louisiana Chemical Association **Comment: 004/0042** **Response: 004/0042**

Reference levels for marine conditions should be applied to marine waters and reference levels for fresh water should be applied to samples from fresh water conditions.

Louisiana Chemical Association **Comment: 004/0043** **Response: 004/0043**

Reference levels for fresh water must be adjusted for hardness.

Louisiana Chemical Association **Comment: 004/0044** **Response: 003/0004**

Other factors affecting the application of water quality reference levels should be considered (e.g. using techniques similar to a water effects ratio study.)

Louisiana Chemical Association **Comment: 004/0045** **Response: 004/0045**

Reference levels that are not appropriate to local biota should not be used.

Louisiana Chemical Association **Comment: 004/0046** **Response: 004/0046**

Sediment reference levels should be adjusted based on sediment mineral type, soil type, AVS/SEM ratio, and other relevant characteristics. Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Louisiana Chemical Association **Comment: 004/0047** **Response: 004/0047**

Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Louisiana Chemical Association **Comment: 004/0048** **Response: 004/0034**

All subsegments except Bayou d'Inde should be delisted for priority organics (because the original listing covered only HCB, HCBD, and PCBs due to a fish advisory that has since been lifted). Thus, subsegments 030301, 030302, 030303, 030304, 030305, 030306, 030401, and 030402 are no longer listed for priority organics.

Louisiana Chemical Association **Comment: 004/0050** **Response: 004/0050**

Nonpriority organics - three subsegments (030302, 030306, and 030901) were originally listed for "nonpriority organics" and not for any specific pollutant. LDEQ indicated that this listing was intended to be a generic term for periodic oil spills. LDEQ indicated that because oil spills are episodic events more appropriately regulated through enforcement actions, they are not appropriate for TMDLs and that these subsegments were delisted for "nonpriority organics." With respect to EPA's proposed Draft TMDLs, this confirms that EPA is not authorized by the Clean Water Act nor the court ordered list to establish wasteload allocations for PAHs, methoxyclor or DDT based upon the generic listing for "nonpriority organics." Thus, EPA's sole asserted basis for imposing WLAs for these pollutants for Bayou Verdine (030306) and the Calcasieu River (030301) must rest on EPA's ability to establish WLAs solely based on contaminated sediments. As discussed below, LCA does not believe that EPA has this legal authority.

Other Inorganics - Bayou d'Inde (030901) was listed on the 303(d) list for "other inorganics". LDEQ discussed the meaning of this term as follows:

Other Inorganics

Subsegment 030901 – Bayou D'Inde – Headwaters to Calcasieu River

The term "other inorganics" was intended as a generic term for those non-metallic inorganic compounds that may occur in the water from brine discharges during oil and gas activities. No water quality sample was collected; therefore, no quantitative assessment was made. Non-metallic inorganic water quality parameters in brine discharges include chlorides, sulfates, total dissolved solids and salinity.

Since Bayou D'Inde is a natural estuarine waterbody frequently influenced by high salinity from the Gulf of Mexico, no water quality criteria for these parameters are set for the bayou in the Louisiana Water Quality Standards. The listing for "other inorganics" in subsegment 030901 was for general informational purposes and not a listing for impairment of water use by any specific parameters (Emphasis added.) Thus, it is clear that the term "other inorganics" does not include mercury or nickel. For this reason, EPA does not have authority under the Clean Water Act or the court approved Consent Agreement to establish TMDLs for mercury and nickel for Bayou D'Inde.

Louisiana Chemical Association **Comment: 004/0051** **Response: 004/0051**

EPA has proposed TMDLs for lead for the Calcasieu River (030301) and for copper at Contraband Bayou (030305). EPA does not have authority under the Clean Water Act or the court approved Consent Agreement to establish TMDLs for these pollutants at these water bodies as these substances are not on the court approved 303(d) list. Further, neither waterbody was listed for the generic category of "other inorganics." There is simply no basis for EPA to usurp LDEQ's authority to establish these TMDLS. Pursuant to section 303(d) of the CWA, LDEQ has primacy over these waters and such primacy has not been changed by the Consent Agreement.

Louisiana Chemical Association **Comment: 004/0052** **Response: 004/0052**

EPA has not provided the public with adequate notice of the selection of specific POCs to allow for comment on the "listing" process or the opportunity to provide additional sampling and evaluations. Interested parties in the Lake Charles area have demonstrated the willingness to undertake detailed sampling studies--e.g., using "clean techniques"--for specific POCs that had previously been identified in the 303(d) list (e.g., copper). Interested parties in the Lake Charles area would like to have an opportunity to provide additional data on each of the 19 selected POCs, prior to EPA's final determination on the Proposed TMDLs.

Louisiana Chemical Association **Comment: 004/0053** **Response: 004/0053**

EPA's "flagging method" for identifying POCs from previous investigation data is not appropriate for a final TMDL determination. As explained on page ES-1 of the Draft TMDL Document, EPA has used a simple screening method to select POCs:

(i) pollutants with more than one exceedance of chronic water quality criteria, or with the mean of detected values exceeding human health criteria; and

(ii) pollutants with sediment concentrations exceeding ESGs or ERMs for 10% or more of samples.

This selection scheme is commonly used as a "screening" technique for identifying POCs which will then be the subject of a more rigorous, statistically robust investigation. The results of this subsequent phase of investigation are then used for decision-making purposes (e.g., formal risk assessment, remedial decisions, treatment decisions, etc.). The use of a screening technique for making final selection of POCs for TMDL development is wholly inappropriate

and has no scientific basis. It is also inconsistent with established EPA guidance and nationally recognized methodologies for pollution or contamination management. The NRC Report states: "Statistical inference procedures must be used on the sample data to test hypotheses about whether the actual condition of the waterbody meets the criterion."

Louisiana Chemical Association **Comment: 004/0055** **Response: 004/0001**

EPA has not made use of statistical techniques for evaluating the full range of results for POCs but rather has arbitrarily chosen to evaluate only exceedances.

Louisiana Chemical Association **Comment: 004/0056** **Response: 004/0001**

A selection method based on finding "more than one exceedance" is arbitrary and has no sound scientific or statistical basis.

Louisiana Chemical Association **Comment: 004/0057** **Response: 004/0057**

To evaluate a set of results for comparison with a reference level, good scientific, statistical practice requires an appropriate estimate of central tendency--appropriate to the type distribution--and use of this as the benchmark for comparison. (Nonparametric statistical techniques may be appropriate for certain data distributions.)

Louisiana Chemical Association **Comment: 004/0058** **Response: 004/0058**

Good scientific practice also requires that nondetect values be assigned a surrogate value consistent with the data quality and general nature of the evaluation. Calculation of the "mean of detected values" is not appropriate since it biases the evaluation.

Louisiana Chemical Association **Comment: 004/0059** **Response: 004/0059**

EPA's use of sediment results and sediment reference levels is not appropriate to selection of POCs for a TMDL determination.

Recent investigations suggest that most sediment POC contamination, where it does exist, is the result of past, localized, historic events or practices. Given the regional sedimentation conditions in the estuary, contaminated sediments are probably undergoing active burial.

Louisiana Chemical Association **Comment: 004/0060** **Response: 004/0060**

There is no information presented on whether the investigation sediment data reflects conditions of sediments currently exposed to the water column. Sediment quality data are not correlated to any deposition dating information. It is likely that most areas of contaminated sediments are buried under more recently deposited sediments and not exposed to the water column. Covers as thin as a fraction of an inch can provide an effective barrier to sediment contamination mobility.

Louisiana Chemical Association **Comment: 004/0061** **Response: 004/0061**

EPA does not present any scientific evidence that sediment conditions are substantially affecting water quality. Given that the TMDL endpoints are water quality criteria for dissolved concentrations, EPA should present a detailed justification--based on scientifically valid, statistically representative, segment-specific data--for using sediment conditions as a basis for inferring the need for water column POCs and TMDLs.

Louisiana Chemical Association **Comment: 004/0062** **Response: 004/0062**

ESGs and ERMs are not promulgated standards for protection of water quality and therefore should not be used as sole references for the selection of POCs. EPA should remove the following POCs since sediment results were the only basis for their selection:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Louisiana Chemical Association **Comment: 004/0063** **Response: 004/0063**

The NRC Report specifically recommends movement of waterbodies from a preliminary list to an action list on the basis of narrative

Louisiana Chemical Association **Comment: 004/0064** **Response: 004/0064**

ESGs and ERMs are not promulgated standards for protection of water quality and, absent a rigorous scientific justification, should not be used as supporting references for the selection of POCs. EPA should eliminate consideration of sediment results in the determination of whether the following compounds warrant selection as POCs:

Mercury, Bayou D'Inde (030901)

Mercury, Calcasieu Ship Channel (030301)

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

Louisiana Chemical Association **Comment: 004/0065** **Response: 004/0065**

Under Section 303 of the Clean Water Act and the TMDL process, EPA is not authorized to establish waste load allocations simply to address sediment. EPA may establish WLA's to ensure compliance with the state ambient water quality criteria in the water column. The touchstone under the Clean Water Act for a TMDL to be authorized is a finding that controls on point sources or non-point sources beyond technology based limitations are necessary to achieve the state water quality standard. Section 303 requires that more stringent, water quality- based discharge limits be imposed only where it is demonstrated that technology limits are insufficient to meet water quality standards in waterbody segment. The whole purpose of the TMDL is to determine what more stringent requirements should be applied to the effluent discharges of point sources and non-point sources.

Where the EPA seeks to establish a WLA (which is to be translated into numerical or best management practices limits on point sources more stringent than technology based standards) solely due to the alleged presence of contaminated sediment, EPA must prove not only that the contaminated sediment is presently contributing to an exceedance of the ambient water quality criteria, but also that controls on the point sources or specified non-point sources will achieve the criteria. Where, as in the proposed TMDLs at issue in this proceeding, EPA has not demonstrated that the sediment is contributing to ambient water quality problems, it cannot be determined whether controls more stringent than technology based controls on point sources or non-point sources will assist in rectifying the problem.

Louisiana Chemical Association **Comment: 004/0067** **Response: 004/0067**

The method used in the Draft TMDL Document to calculate wasteload allocations for sediment contaminants (PAHs, pesticides, etc.) has no scientific basis because it does not relate pollutant loads in the water column to concentrations in the sediment. EPA assumes in the draft TMDL that if the water quality criteria for organic chemicals and metals are achieved, the sediment targets will also be achieved. This assumption has no scientific foundation and is not supported by any technical analysis in the Draft TMDL Document.

Louisiana Chemical Association **Comment: 004/0068** **Response: 004/0068**

If the sediment concentrations are due to historic discharges (before current treatment was installed), then there is no correlation between the current point source discharges and the sediment pollutant concentrations.

EPA must evaluate and determine the cause and effect between organic chemical and metal concentrations in point and nonpoint discharges, the water column, and sediments before it can perform the TMDL for sediments. It has not done this, so the Proposed TMDLs are fatally flawed with respect to the evaluation of sediments.

Louisiana Chemical Association **Comment: 004/0070** **Response: 004/0070**

EPA has other legal authority to address contaminated sediments where the cause of the contamination is historic releases or other causes that will not be addressed by imposition of limitations on existing dischargers. The TMDL process is inappropriate and not legally authorized for the purpose of addressing contaminated sediments where such sediments have no impact on the ability of the water column to meet water quality criteria and/or where imposition of controls on existing dischargers has no impact on the sediments

Louisiana Chemical Association **Comment: 004/0071** **Response: 004/0071**

Sediment quality guidance values and EPA's national water quality criteria cannot be used for a TMDL because they have not been adopted as provisions of LDEQ's water quality standards. EPA has used the LDEQ surface water

quality standards (LAC 33:IX.1101-1123) as compliance targets for the Proposed TMDLs. The LDEQ criteria are appropriate for this purpose because they were adopted by LDEQ through formal rulemaking, including public comment, and have been approved by EPA.

Louisiana Chemical Association **Comment: 004/0072** **Response: 004/0072**

EPA also used several other databases as TMDL targets for specific pollutants: (1) EPA national water quality criteria ("EPA WQC") (63 Fed. Reg. 68354, December 10, 1998); (2) effects range-median (ERM) values for sediments that were developed by the National Oceanic and Atmospheric Administration ("NOAA"); and EPA's equilibrium partitioning sediment guidelines (ESG). None of these databases that were used as TMDL targets have been adopted as Louisiana water quality criteria. They have no legal standing and have not been subject to public review and comment through a rulemaking process at either the national level or in Louisiana. Therefore, they cannot be legally used as TMDL targets unless EPA shows in the TMDL that they are correlated to water column or sediment toxicity, or bioaccumulation in aquatic animals, to a sufficient extent that they can be used in a cause-effect relationship to develop wasteload allocations ("WLA") and load allocations ("LA") for point and nonpoint sources, respectively.

Louisiana Chemical Association **Comment: 004/0073** **Response: 004/0073**

Sediments can be listed as impaired based on measured toxicity and the LDEQ's narrative toxicity standard (LAC 33:IX.1113.B.5); however, a toxicity identification evaluation ("TIE") must be performed to identify the specific pollutant(s) causing the toxicity before a TMDL can be performed. EPA has not performed a TIE for sediments, or the water column, that identifies the pollutant or pollutants that are allegedly causing the measured toxicity.

Louisiana Chemical Association **Comment: 004/0074** **Response: 004/0074**

Neither has EPA presented in the Draft TMDL Document any scientific analysis that demonstrates that the EPA WQC, NOAA ERM, or EPA ESG values have any relationship to the measured sediment and water column toxicity identified in certain segments of the estuary. Therefore, the use of these "targets" that are based on numeric levels in EPA and NOAA guidance that has never undergone review and comment as substitute water quality standards for Louisiana is unlawful and technically unsupported.

Louisiana Chemical Association **Comment: 004/0075** **Response: 004/0062**

NOAA ERM concentrations are not appropriate for establishing site-specific sediment toxicity correlations or TMDL targets. NOAA developed its sediment quality guidelines, including the ERM values, to assist it in the identification of sediments that required additional study in its National Status and Trends Program. These sediment quality guidelines are not intended to be sediment criteria and should not be used for this purpose. NOAA's summary of its guidelines includes the following statement:

The SQGs were not promulgated as regulatory criteria or standards. They were not intended as cleanup or remediation targets, nor as discharge attainment targets. Nor were they intended as pass-fail criteria for dredged material disposal decisions or any other regulatory purpose. Rather, they were intended as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments.

The NOAA SQGs cannot be used as de facto sediment quality criteria because they represent a range of aquatic organism species, sediment characteristics, and aquatic environments. The SQGs do not consider the bioavailabilty of pollutants that are influenced by local sediment and water chemistry. Likewise, the sensitivity of resident aquatic species is not reflected by the SQGs. Therefore, use of the NOAA SQGs as TMDL targets for certain pollutants found in sediments is not scientifically supported and cannot be the basis for the Proposed TMDLs.

EPA's SQGs are not sediment quality criteria and are not appropriate as TMDL targets. EPA's SQGs are based on the equilibrium partitioning concept. EPA originally proposed these values as sediment quality criteria but subsequently identified them as guidelines because they do not reflect site-specific conditions and bioavailability of pollutants with sufficient reliability to be used as numeric sediment quality criteria. This is true even though EPA considers the sediment organic content and acid volatile sulfides concentrations to predict the potential toxicity of nonionic organic chemicals and metals, respectively. The EPA SQGs are intended to be used in the same way as the NOAA SQGs--to identify sediments that merit additional study to determine whether toxicity is present and, if so, to conduct the required site-specific studies to identify the causative pollutant(s). They are not sediment quality criteria and cannot be used as target concentrations for a TMDL.

In summary, the draft TMDL has not developed an adequate scientific basis for establishing TMDLs to address sediment toxicity. No site-specific analysis is provided in the draft TMDL to support a site-specific correlation

between sediment toxicity and the EPA and NOAA SQGs. Louisiana has no sediment quality criteria. In order to use LDEQ's narrative toxicity standard to address sediments, a site-specific cause and effect correlation between sediment pollutant concentrations and sediment toxicity must be determined before protective concentration targets can be established for a TMDL (i.e., a narrative standard translator). Because the SQLs are not sediment criteria and both EPA and NOAA explicitly caution against using them as such, the SQLs must not be used as TMDL targets unless such a correlation can be shown with site data. Moreover, this correlation should be pollutant-by-pollutant in order to have scientific integrity for the TMDL process.

Louisiana Chemical Association **Comment: 004/0078** **Response: 004/0078**

Because EPA has not developed an acceptable narrative standard translator for sediment toxicity, the proposed TMDLs for sediment in the draft TMDL are not scientifically supported and should not be adopted. Instead, EPA should provide for a data collection program to conduct the necessary sediment toxicity identification evaluations (TIE) to determine the pollutants causing sediment toxicity and the appropriate pollutant concentration targets.

Louisiana Chemical Association **Comment: 004/0079** **Response: 004/0079**

As noted by EPA on page 15 of the Draft TMDL Document, a TMDL should "provide an opportunity to compare relative contributions from all sources and consider technical and economic tradeoffs between point and non-point sources." There is no evidence within the Draft TMDL Document that EPA actually considered "technical and economic tradeoffs between point and non-point sources."

LCA submits that EPA made no effort to allow increased use of best management practices to control discharges of zinc, copper, and lead from nonpoint sources so as to allow increased loadings of zinc, copper, and lead from point sources. See, e.g., (a) proposed TMDL for zinc for Bayou Verdine (030306), (b) proposed TMDL for copper for Bayou D'Inde (030901), (c) proposed TMDL for copper for Upper Calcasieu Estuary and Ship Channel (030301), and (d) proposed TMDL for lead for Upper Calcasieu Estuary and Ship Channel (030301). LCA submits that failure to consider such tradeoffs for the affected pollutants renders the relevant TMDLs arbitrary, capricious, and legally impermissible.

Louisiana Chemical Association **Comment: 004/0081** **Response: 004/0081**

It is technically incorrect to use nonpoint source loadings for aquatic life criteria that are evaluated at the 7Q10. There is no surface runoff from rain events when the 7Q10 occurs; therefore, there should be no nonpoint source loadings of pollutants under such flow condition.

In the Draft TMDL Document, EPA uses a flow-based ratio method to estimate nonpoint source runoff contributions at critical low flow in the tributaries and estuary (page 14). No technical analysis is provided to support the conclusion that any surface runoff (i.e., nonpoint source flows) will occur coincident with the 7-day, 1-in-10-year low stream flows (7Q10). In fact, it is logical to assume that there will be no surface runoff during the critical low flow periods for this basin. The potential for surface runoff can be evaluated by reviewing the stream flow records in the watershed to determine when the 7Q10 flow has most recently occurred and then collecting and evaluating precipitation records for the same time period. It is probable that even if there is precipitation somewhere within the watershed during the period when the 7Q10 occurs, it will be very limited in both amount and spatial distribution and will not contribute nonpoint source loadings of significance.

The Proposed TMDLs should be recalculated assuming that there is no nonpoint source loading for all pollutants that have aquatic life criteria as targets, i.e., those wasteload allocations that are based on the 7Q10.

Louisiana Chemical Association **Comment: 004/0083** **Response: 004/0083**

LCA submits that the 20% MOS used by EPA in the development of TMDLs in the Draft TMDL Document is overly conservative and inappropriate, especially in light of the conservative approach used by EPA in its modeling and projection methodologies. As noted by EPA in its "Guidance for Water Quality-Based Decisions: The TMDL Process," EPA 440/4-91-001 (April 1991):

The MOS is normally incorporated into the conservative assumptions used to develop TMDLs (generally within the calculations or models) and approved by EPA either individually or in State/EPA agreements. If the MOS needs to be larger than that which is allowed through the conservative assumptions, additional MOS can be added as a separate component of the TMDL . . . .

(Emphasis added.) The overly conservative approach used by EPA--in adding an additional margin of safety of 20% to the calculated TMDLs--renders the TMDLs arbitrary, capricious, and legally impermissible.

LCA further submits that margins of safety for TMDLs should be based on estimates of the uncertainty of the estimated wasteload and load allocations. EPA has done no analysis that justifies its arbitrary MOS of 20%. EPA has stated in the TMDL regulation that the MOS should be based on the estimated uncertainty in the TMDL predictions. While this regulation is not yet effective, this recommendation is both scientifically sound and good public policy. EPA should base any MOS on an uncertainty analysis of the TMDLs.

Louisiana Chemical Association **Comment: 004/0085** **Response: 004/0085**

A hydrodynamic model should have been used to estimate flows and dispersion in the estuary. Because of tidal dispersion, the water column-sediment interactions are very important in this estuary, and the failure to use a modeling approach that accounts for tidal dispersion and sediment transport is a fatal flaw in the Proposed TMDLs. EPA states that it evaluated the use of the WASP6 model to simulate pollutant transport and fate in the estuary and tributaries (Draft TMDL Document, page 16). EPA abandoned this effort and selected the mass balance approach because:

Although the WASP6 modeling system provides an excellent general tool to model the natural processes that determine the fate of various pollutants in the Calcasieu Estuary, data that can be used to estimate these processes in the Calcasieu Estuary are extremely limited. Because of these limitations, model results varied over a large range, depending on assumptions made about parameters for which there were no data. As a result, the use of the model as a quantitative tool to estimate allowable loads was not deemed appropriate.

This is not a justifiable reason to abandon the scientifically supported approach needed for a TMDL of this importance and magnitude. Indeed, this statement indicates that because EPA was under a schedule set by court order, it abandoned the best available scientific tools to perform the TMDL in order to meet its schedule.

Louisiana Chemical Association **Comment: 004/0086** **Response: 004/0086**

TMDLs are routinely conducted by states and EPA using literature values for certain of the fate constants used in WASP6 and similar models. EPA has issued numerous guidance documents on selecting necessary coefficients for these models and performing sensitivity analyses of the results to better understand the reliability of model predictions., Models can also be parameterized using sensitivity analysis and/or optimization approaches. As a worst case simplification, pollutants that are modeled could be considered as conservative (i.e., not subject to biodegradation, chemical reactions, biodegradation or volatilization) in a model that simulates the hydrodynamics of the system. Even a conservative pollutant simulation approach using an appropriate mass transport model would be preferable to a mass balance. The mass balance approach does not allow any analysis of the precision and accuracy of the TMDL results, which is a fundamental concept that EPA included in the 2000 TMDL regulation.

The transport and dispersion of pollutants in the Calcasieu Estuary is complex and must be considered in any TMDL analysis. The basic hydrodynamics of the system can be represented by a number of models, including WASP6, and only requires fresh water inflows, tidal data, and the bathymetry of the estuary and tributaries (including the ship channel) to obtain realistic simulation. This information is readily available and should have been used to develop a model for determining pollutant transport in the tributaries and estuary (a previous water quality model developed by LDEQ for dissolved oxygen evaluations has sufficient hydraulic data to serve as a starting point).

EPA should redo the draft TMDL using an appropriate model to simulate the complex hydrodynamics of the Calcasieu Estuary. The hydrodynamic model should be calibrated and verified with tidal data and salinity data, both of which are available.

Once an acceptably calibrated hydrodynamic model is available, a water quality model using those hydrodynamics should be developed. The WASP6 model would be acceptable. Alternatively, other models could also be used if they represent the fate and transport processes that occur in the estuary. As a minimum, the water quality model should include chemical reactions, biodegradation, volatilization, and particulate attachment and sedimentation for organic chemicals and particulate partitioning and sedimentation for metals. It must also include sediment resuspension and transport, for reasons discussed elsewhere in these comments. The water quality model should be calibrated to the extent practical with available data. Where insufficient data are available, then sensitivity analyses should be performed to determine the uncertainty in the model predictions. All of this information is justified for a TMDL that is as complex and has as much potential impact on dischargers as this one does.

Louisiana Chemical Association **Comment: 004/0089** **Response: 004/0089**

EPA's statement that tidal dispersion at low flows is unimportant and can be ignored is not accurate for the main channel of the estuary. EPA states in the Draft TMDL Document that tidal dispersion is not important at low

(critical) stream flows (Draft TMDL Document, page 18). Also, EPA states that no estimates of tidal dispersion are available to use in a model. Both of these statements are inaccurate.

Failure to account for tidal dispersion (which LDEQ considers in NPDES permitting actions) results in overly conservative estimates for discharges to the estuary and is another major technical flaw in the TMDL evaluation. As stated in the previous comment, it is not true that a hydrodynamic model is impractical. Tidal records, salinity, bathymetry, and major inflow are all available and because basic hydraulics of estuarine systems can be reliably simulated with such models, they should be used to predict the effects of tidal dispersion.

Louisiana Chemical Association **Comment: 004/0091** **Response: 004/0091**

The TMDL incorrectly excludes partitioning of organic chemicals and metals to particulates and subsequent sedimentation and potential resuspension. EPA states that it did not include partitioning of organic chemicals and metals to particulates and subsequent sedimentation because:

(1) it has no estimates of particle density and sedimentation rates; and

(2) if metals and organic chemicals in particulates accumulate in contaminated sediments they will contribute to an existing impairment (Draft TMDL Document, page 18).

Both of these arguments for not dealing with this fate mechanism are unjustified.

Louisiana Chemical Association **Comment: 004/0092** **Response: 004/0092**

With respect to sedimentation rates, there are ample data in the technical literature that can be used to estimate such rates in tidally-affected surface waters. As discussed earlier, default rates for variables such as sedimentation of particulates can be used in a model and sensitivity analyses can be used to establish acceptable estimates for prediction of water column pollutant concentrations. The particulates settling from the water column will not necessarily cause or contribute to elevated pollutant concentrations in the sediment. In fact, once effluent quality improves (which is probably already the case), the particulates settling from the water column may dilute the pollutant concentrations in the sediment. A simple calculation will show that if a point source is achieving a water quality-based effluent limit for a pollutant such as a metal, the concentration of the metal in any particulates that are discharged will typically be well below the elevated sediment concentrations reported in some segments of the Calcasieu Estuary. However, such an analysis to determine if pollutant chemicals attached to particulates actually could cause or contribute to sediment contamination was never done by EPA.

Louisiana Chemical Association **Comment: 004/0093** **Response: 004/0093**

A very important issue with respect to sediment-water column interaction and the fate of organic chemicals and metals in the Calcasieu Estuary is not evaluated by EPA (other than mentioning it) in the TMDL. Most if not all of the sediment contamination in the estuary and its tributaries is likely to be a legacy issue, from past discharges that were not treated as effectively as they are today. The existing discharges may not contribute to the existing sediment contamination and may actually be diluting sediment contaminant concentrations if they are having any effect at all. However, EPA did not evaluate any fate or transport mechanisms with respect to sediment contamination so there is no information or evaluation to determine if existing discharges are contributing to sediment pollutant concentrations. The absence of any scientific analysis of the cause and effect relationship between discharges and sediment

Louisiana Chemical Association **Comment: 004/0094** **Response: 004/0094**

EPA has proposed a TMDL for total PCBs for Bayou d'Inde. The Draft TMDL Report indicates that only 1 sample out of 27 water column samplings for PCBs in Bayou d'Inde showed detectable levels of PCBs. Without more supporting information concerning the data quality (general methodology, detection limits, selectivity of detection, quantification method) and given the difficulty of low level measurement, the use of this data point is questionable.

Louisiana Chemical Association **Comment: 004/0095** **Response: 004/0009**

EPA indicates that concentrations in fish tissue are indicative of water concentrations that may exceed the standard, but also states that none of the facilities permitted to discharge into this subsegment are permitted to discharge PCBs. EPA's contractor did not conduct any rigorous source analysis.

EPA has recognized that PCBs are ubiquitous in the environment due to widespread use in electrical equipment prior to the adoption of the Toxic Substances Control Act ("TSCA") restrictions on the manufacture and use of PCBs. The presence of PCBs in the environment is due to past releases, particularly from transformers, prior to the TSCA program. However, the TSCA program has banned their manufacture and phased out their use. For this

reason, PCBs are often referred to as a "legacy" pollutant, one that has been banned and thus will naturally decrease in the environment over time.

Because the TSCA program provides the reasonable assurance that measures have been taken to prevent ongoing PCB contamination, limitations more stringent than technology based limitations for ongoing wastewater dischargers are not needed - they simply are not the solution to any PCB problem, if one exists. A finding that more-rigorous-than technology based limitations is the cornerstone requirement for enactment of a TMDL – and this requirement is not met. Instead, EPA should focus its efforts on ensuring compliance with TSCA requirements and the phase-out of use of PCB containing electrical equipment.

Louisiana Chemical Association **Comment: 004/0098** **Response: 004/0098**

Other TMDLs, such as that performed for the Flat Fork Creek in West Virginia, acknowledged that controls on ongoing sources would not be required and no WLA was proposed. Instead the TMDL recognized that PCB contamination was from nonpoint sources and that natural processes would decrease instream sediments and water column concentrations of PCBs. Thus, the action plan under the TMDL was to continue fish monitoring to confirm that PCB contamination was being reduced.

Louisiana Chemical Association **Comment: 004/0099** **Response: 004/0099**

In the case of the Calcasieu River, the fish tissue concentrations throughout the estuary, especially in less motile aquatic species, indicate the ubiquitous nature of PCBs. Further, comparison with nationally published data (EPA 1992) indicate the levels of PCBs found in the Calcasieu Estuary are typically encountered in other urbanized areas of the U. S. For these reasons, EPA should conduct further potential source analysis, including potential urban runoff, prior to taking any further action.

Louisiana Chemical Association **Comment: 004/0100** **Response: 004/0100**

It should also be noted that EPA has revised its human health criteria for total PCBs based upon changes in the IRIS database. In 1999 EPA revised the human health water quality criteria for PCBs in the National Toxics Rule. 64 Fed. Reg. 61182 (November 1999). The NTR calculates human health criteria for PCBs using the cancer slope factor entered in IRIS. Because better data became available as the result of new studies, IRIS updated the cancer potency factor. This updated cancer potency factor resulted in a revised EPA human health water quality criteria of 0.14 ug/L for protection of human health from consumption of aquatic organisms and water, and 0.15 ug/L for consumption of aquatic organisms only. Louisiana's human health water quality criteria of 0.01 ng/L is based on an outdated cancer slope factor and will likely be revised to reflect updated cancer potency data during the next triennial review.

Louisiana Chemical Association **Comment: 004/0101** **Response: 004/0101**

However, even if the human health water quality criteria is revised, which will necessitate a revision of any TMDL, it is highly unlikely that any proposed or future TMDL-derived effluent limitations will cause any decline in tissue concentrations A TMDL is simply not the appropriate vehicle to address historic PCB contamination.

Louisiana Chemical Association **Comment: 004/0102** **Response: 004/0102**

EPA must perform uncertainty analyses of its TMDLs in order to demonstrate the reliability and reasonableness of the wasteload allocations. In the Draft TMDL Document, EPA assumes that all of the impairments identified in the Calcasieu Estuary can be eliminated by control of point sources. In the Draft TMDL Document, EPA makes no attempt to estimate the uncertainty in the proposed wasteload allocations and load allocations. Estimates of uncertainty are essential to allow the regulated community and the general public to understand how effective the Proposed TMDLs will be in achieving the water quality objectives.

If an appropriate uncertainty analysis is conducted, it will allow identification of those portions of the TMDL that require more data collection and analysis to result in wasteload allocations and load allocations that will eliminate the impairments, but will not be so overly conservative that they cause excessive economic and social impacts.

Louisiana Chemical Association **Comment: 004/0103** **Response: 004/0014**

LDEQ's chronic criterion for mercury embodies a screening level based on tissue residues. It is not appropriate to use the LDEQ screening level as though it is a chronic aquatic life criterion that must be achieved at the critical low flow. In the Draft TMDL Document, EPA uses the Louisiana surface water chronic aquatic life criterion as the target for mercury TMDLs (Draft TMDL Document, Appendix A). This mercury criterion is actually a screening level and if it is exceeded in the water column, the standards require that fish tissue samples be analyzed for methyl

mercury and compared to the Food and Drug Administration tissue action level of 1 mg/kg (footnote 11 to Table 1, LAC 33:IX.1113, as quoted in Footnote 4 to LCA's Comments). The standards specify that if fish tissues concentrations of methyl mercury exceed the FDA action level, LDEQ must initiate the necessary studies to establish a protective site-specific water quality criterion for mercury.

EPA has not performed any fish tissue testing and thus cannot even establish exceedances of the mercury screening level. Further, EPA data developed in Phase II of the Calcasieu Estuary Superfund--where fish tissue testing was done--support LCA's conclusion that there is no exceedance of the aquatic protection criteria. Thus, the TMDL for mercury should be withdrawn.

Louisiana Chemical Association **Comment: 004/0105** **Response: 003/0004**

If it is determined that a TMDL for copper, lead, nickel or zinc is legally authorized, which is denied, then the TMDL should indicate that site-specific aquatic life water quality criteria for copper, lead, nickel, and zinc may be appropriate for all or some of the waterbodies in the Calcasieu Estuary. If such site-specific criteria are appropriate, the Proposed TMDLs should be revised. Several states have identified reassessment of their water quality criteria using site-specific conditions as one of the first steps in their TMDL procedures. The reason for this is that aquatic life criteria that are based on EPA's national criteria are often overprotective when site-specific bioavailability of a pollutant is considered. This is especially true for metals. For example, in August 2000, Texas adopted site-specific aquatic life criteria for the Houston Ship Channel, side bays and tributaries, and San Jacinto Bay, which are estuarine systems with hydraulic and biological characteristics that are similar to the Calcasieu Estuary. The revised copper criteria, which are based on the EPA's water effects ratio method for developing site-specific criteria, are greater than the statewide estuarine copper criteria, which are based on the EPA national criteria, by a factor ranging from 1.9-2.3. EPA Region 6 approved these site-specific copper criteria on February 27, 2002.

It is probable that the existing Louisiana statewide criteria for copper, lead, nickel and zinc in estuarine waters are also overprotective. The Proposed TMDLs should provide for development of site-specific aquatic life criteria for these metals and adjustment of wasteload allocations if such criteria are greater than the statewide criteria.

Louisiana Chemical Association **Comment: 004/0106** **Response: 004/0106**

The draft TMDL proposes wasteload allocations for certain pollutants that are lower than the applicable surface water criterion. This result conflicts with the NPDES regulations, because a discharge that is at a water quality criterion concentration cannot cause or contribute to an exceedance of that criterion. EPA applies its arbitrary MOS of 20% to each TMDL that it calculates, which results in wasteload allocations for some dischargers that are lower than the limits that are calculated with the applicable water quality criteria for zinc, mercury, and nickel. For example, EPA states that the zinc limit for Sasol that is calculated by applying the water quality criterion as an end of pipe limit (no mixing zone) is 1.95 lb/day (Draft TMDL Document, page 31). The proposed zinc TMDL for Sasol is 1.6 lb/day (Draft TMDL Document, Table 15). Thus, because of the 20% MOS applied by EPA, the allowable TMDL for Sasol is approximately 20% lower than the water quality criterion.

LCA believes that the proposed wasteload allocation for zinc, mercury, and nickel, are not consistent with EPA's NPDES regulations for water quality-based effluent limits (40 CFR 122.44(d)) because if the effluent concentrations are equal to the water quality criterion for a pollutant, the discharge cannot cause or contribute to an exceedance of the criterion because it cannot increase the ambient concentration above the criterion. A wasteload allocation that is set below the applicable criterion is inconsistent with EPA permitting regulations and is not scientifically justified. These TMDLs must be revised to set the wasteload allocations at concentrations no lower than the applicable water quality criteria.

Louisiana Chemical Association **Comment: 004/0107** **Response: 004/0107**

The analysis for calcium limits in Bayou Verdine has no scientific foundation and, in fact, no site-specific data were used to generate the wasteload allocation. The TMDL establishes proposed wasteload allocations for calcium, based on the assumption that calcium is causing sediment toxicity (Draft TMDL Document, pages 31-32). This assumption is based on an inconclusive TIE performed by EPA's contractor. In the Draft TMDL Document, EPA indicates that the TIE didn't reduce toxicity of the sediments significantly using a range of treatment and states that these results "suggest" an ion imbalance due to calcium is the cause of toxicity. A TMDL should not be based on a "suggestion" of the cause of toxicity.

Louisiana Chemical Association **Comment: 004/0108** **Response: 004/0108**

Once calcium was identified as the "suggested" target pollutant, the "criterion" was derived from water column data

taken from the 1999-2000 EPA Superfund monitoring program (Draft TMDL Document, page 32). This value is incorrectly listed in Appendix A of the TMDL as a chronic water quality criterion. It has not been officially adopted by LDEQ as such. There are two fundamental problems with EPA's selection of a calcium target for the TMDL: (1) there is no technical analysis to demonstrate that calcium in the water column has any correlation to calcium in the sediments; and (2) the calcium data used by EPA was taken from the entire surface water database for the Calcasieu Estuary TMDL and thus has no demonstrated relevance to the site-specific conditions in Bayou Verdine. In fact, there are no calcium data for Bayou Verdine in the EPA database. All of the data are taken from other areas of the estuary and are thus of questionable validity for projecting protective concentrations for the sediments in Bayou Verdine.

The TMDL for calcium in Bayou Verdine is based on a series of assumptions, none of which are supported by any scientific analysis. This TMDL should be deleted from the final TMDLs. It should be replaced by a sediment TIE program that when properly designed and executed, will identify the pollutant or pollutants that are causing the toxicity. EPA requires meeting this objective when an individual discharger performs a TIE--no less should be required of EPA before a TMDL is developed.

Louisiana Chemical Association **Comment: 004/0109** **Response: 004/0109**

EPA should provide water quality endpoints based on dissolved concentrations of POCs. LDEQ's water quality standards are specifically promulgated as dissolved standards since chronic aquatic toxicity and human health criteria are both based on uptake of dissolved fractions. EPA does not provide an evaluation of whether dissolved concentrations of proposed POCs exceed appropriate reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, should be provided on a dissolved basis.

Louisiana Chemical Association **Comment: 004/0110** **Response: 004/0110**

EPA should provide freshwater quality endpoints for nickel and copper in fresh portions of segments. LDEQ requires that freshwater chronic aquatic toxicity criteria be applied for nickel (a POC in Bayou Verdine and Bayou D'Inde) and copper (a POC in the Calcasieu Ship Channel and Bayou D'Inde) and be adjusted for hardness. EPA does not provide an evaluation of whether nickel and copper exceed appropriate freshwater, hardness adjusted reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, for nickel and copper should take into account fresh conditions and hardness.

Louisiana Chemical Association **Comment: 004/0111** **Response: 004/0111**

EPA should evaluate stream specific conditions that may result in adjusting endpoints. Other factors can affect water quality criteria for toxic POCs, and chronic aquatic toxicity and human health criteria that are applicable to conditions in one geographic area may not be applicable to the Calcasieu Estuary. Segment specific water effects ratio studies should be undertaken to evaluate if "generic" endpoints for POCs are applicable.

Louisiana Chemical Association **Comment: 004/0112** **Response: 004/0112**

There are several pollutants for which TMDLs have been proposed which have been calculated to achieve existing state human health criteria - including TMDLs for HCB, HCBD and PCBs. These human health criteria are likely to be revised at the state's next triennial review because EPA has revised the cancer slope factors in IRIS upon which these criteria are based. EPA has already revised its human health criteria in 40 CFR 131.36 for these pollutants to account for the changes to the IRIS data. All three criteria were revised to slightly higher values. See 40 CFR 131.36. For HCBD, the new criteria is above achievable method detection limits and water quality monitoring data within the Calcasieu Basin has shown that there is no exceedance of this criteria. LCA requests that EPA delay completion of any Waste Load Allocations for these criteria until the state completes this triennial review, or, in the alternative, that EPA specify in the response to comments that if LDEQ has proposed to amend these criteria at the time of any permit issuance, then the WLA can be adjusted pursuant to the new criteria.

Louisiana Chemical Association **Comment: 004/0113** **Response: 004/0113**

EPA should provide detailed references, data sets, and copies of actual calculations for the flow estimates.

The low flow estimate for the Calcasieu Ship Channel—Salt Water Barrier to Moss appears to be in error. The EPA low flow value appears to be the lowest daily flow for the Calcasieu River at the Kinder gauging station for 1999 (Ref 1). It is not a 7Q10 flow. In addition, this station is above the confluence with the West Fork and Houston River. Ref 2 provides a factor of 1.86 for adjusting 7Q10 flow at Kinder to the Saltwater Barrier. If 258 cfs is used as the low flow at Kinder, an appropriate estimate for low flow at the Saltwater Barrier would be 479 cfs.

Alternatively, Ref. 2 provides a 7Q10 flow estimate for the Calcasieu River at the Saltwater Barrier of 375 cfs. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided an estimate of the critical flow based on tide cycle of 1,917 cfs at Louisiana Pigment (Ref. 3).

The low flow estimate for Bayou D'Inde appears to be in error. Ref. 4 provides a 7Q10 estimate of 7.6 cfs (4.9 mgd). However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided estimates of the critical flow based on tide cycle of 34.4 and 31.1 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). Just above PPG Outfall No. 001, near the Bayou D'Inde, critical flow based on tide-cycle is reported to be 121 cfs (Ref 7).

The estimates for the low flows on the remaining segments also appear to be in error. Ref. 4 provides a 7Q10 estimate of 1.4 cfs (0.9 mgd) for Bayou Verdine. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. EPA should develop critical flow estimates based on tide cycle for the remaining segments.

The estimates for mean flows for the segments appear to be in error. The 1999 mean flow at Kinder was 2,690 cfs (Ref. 1). Applying the area factor of 1.86 (Ref. 2) a mean flow estimate is 4,994 cfs. EPA should develop mean flow estimates based appropriate data for the remaining segments.

The estimate for harmonic mean flow for the Calcasieu Ship Channel appears to be in error. LDEQ has provided an estimates of the harmonic mean flow at Louisiana Pigment of 5,750 cfs (Ref. 3).

The estimate for harmonic mean flow for Bayou D'Inde appears to be in error. LDEQ has provided estimates of the harmonic mean flow of 103.3 and 93.4 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). At PPG near the mouth of Bayou D'Inde the harmonic mean flow is reported to be 363 cfs (Ref 7).

The estimates for harmonic mean flows on the remaining segments also appear to be in error. EPA should develop estimates of harmonic mean flow on the remaining segments based appropriate data.

Louisiana Chemical Association **Comment: 004/0121** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements. There is currently a significant lack of capacity for obtaining "clean techniques" laboratory analyses. There are currently only two LDEQ certified laboratories which are offering "clean techniques" and both are out of state (Madison, Wisconsin and Seattle, Washington).

Louisiana Chemical Association **Comment: 004/0122** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of "generic" endpoints, and facility flows. Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of new information.

Louisiana Chemical Association **Comment: 004/0123** **Response: 004/0123**

EPA should eliminate sampling and testing of total metals. The TMDL endpoints are for dissolved concentrations in the water column. All TMDL water quality testing should be performed on a dissolved basis.

Louisiana Chemical Association **Comment: 004/0124** **Response: 004/0124**

EPA should eliminate the requirement for LDEQ to sample and monitor sediments. The TMDL endpoints are for dissolved concentrations in the water column. TMDL monitoring of sediment quality should be eliminated unless and until scientific evidence of sediment induced impairment of segment water quality can be demonstrated. Further study of this linkage is certainly warranted.

Louisiana Chemical Association **Comment: 004/0125** **Response: 004/0125**

Facilities should be allowed to report loadings on a "net" basis for POCs with nonpoint source load allocations. Many facilities in the Calcasieu Estuary utilize water from the segments for process and cooling water. "Background" loads in segment water--including upstream, tributary, atmospheric, and nonpoint source loads--are therefore present in this water at the point it is withdrawn and returned to the segment. EPA should expressly allow for dischargers to subtract all "background" contributions from the facility's measured final discharge load.

Louisiana Chemical Association **Comment: 004/0126** **Response: 004/0126**

Facilities should be allowed to report loadings on a statistically valid, scientifically reasonable, averaged basis. TMDL wasteload allocations should be implemented as limitations on a statistically based measure of mean loadings. For human health criteria POCs, an annual mean loading is appropriate. For chronic aquatic criteria, a monthly average is appropriate.

Louisiana Chemical Association **Comment: 004/0127** **Response: 004/0127**

Given the many identified limitations of the science in the TMDL process, all proposed toxic TMDLs should be clearly qualified by EPA as "provisional". In its final determination on the Proposed TMDLs, EPA should include a section specifically discussing the limitations of the science in establishing toxic TMDLs for the Calcasieu Estuary and should clearly state that such TMDLs are provisional. In this section, EPA should set forth a process for prompt review and revision of the affected TMDLs upon obtaining new information. Such information could be generated either by EPA itself, LDEQ, or other interested parties. Finally, EPA should specifically acknowledge that future ambient water quality information may result in delisting of the affected waterbodies and/or POCs and rescinding of TMDLs.

Louisiana Chemical Association **Comment: 004/0128** **Response: 004/0128**

LCA notes that under the consent decree, effective April 1, 2002, entered into by the parties in those proceedings entitled "Sierra Club and Louisiana Environmental Action Network v. Gregg A. Cooke, Regional Administrator, Christine T. Whitman, Administrator, United States Environmental Protection Agency; and U.S. Environmental Protection Agency," Civil Action No. 96-0527, Section "S" (4) on the docket of the United States District Court for the Eastern District of Louisiana (the "Consent Decree), EPA agreed that for the waterbody/pollutant combinations in the Calcasieu Basin (including, without limitation, Waterbody Subsegments 030301, 030306, and 030901), TMDLs would be established by May 31, 2002, unless EPA received an extension of such deadline. LCA submits that the comments submitted in connection with the proposed TMDLs for the Calcasieu Basin justify a request by EPA to extend the deadline(s) for establishment of TMDLs for those waterbodies. LCA further submits that the proposed TMDLs for such waterbodies should not be finalized by EPA until EPA has had a reasonable opportunity to review, consider, and appropriately respond to the comments submitted on such proposed TMDLs. LCA thus requests EPA to take such action(s), as necessary, under the Consent Decree to obtain extension(s) of the May 31, 2002 deadline for establishment of TMDLs for such waterbodies.

Equistar **Comment: 005/0001** **Response: 004/0128**

It is highly recommended that EPA reopen the comment period in order to allow for all interested parties to comment, and that all comments and recommendations be addressed and incorporated into the TMDL determination process.

Equistar **Comment: 005/0002** **Response: 004/0035**

In general, sampling data used for identifying all POC's appears to be biased to localized contamination studies and therefore non-representative of a waterbody sub-segment. It is recommended that EPA use a more scientific and statistical approach to selecting POCs.

Equistar **Comment: 005/0003** **Response: 003/0002**

According to Tables 1 and 19 of the above-referenced draft TMDL document, there are two chemicals that were identified as "pollutants of concern" for Bayou D'Inde only because of their presence on EPA's 303(d) list. These were Tetrachloroethane and Bromoform. It is not obvious that there were concentrations of these pollutants above reference levels to support the initial listing of these chemicals. What was the specific basis for including these two pollutants on the 303(d) list (or its precursor lists)? Please provide and explain specific data used to support this.

Equistar **Comment: 005/0004** **Response: 005/0004**

According to the draft document, all major and minor dischargers to Bayou D'Inde would be required to test effluents for "chronic toxicity" at least quarterly to demonstrate that unmonitored pollutants or the combination of monitored and/or unmonitored pollutants are not causing in-stream toxicity. It is recommended that facilities having previous chronic toxicity testing data be allowed to submit the data as evidence to achieve this demonstration. Quarterly toxicity analyses should not be necessary for those facilities whom have successfully performed this demonstration in the past and are currently continuing to monitor at a less frequent basis per their NPDES/LPDES water permits.

Equistar **Comment: 005/0005** **Response: 004/0011**

It appears that EPA did not address information provided by LDEQ for the de-listing of copper for several sub-segments, including Bayou D'Inde. It is recommended that the EPA incorporate information submitted by LDEQ.

Equistar **Comment: 005/0006** **Response: 005/0006**

The document states that concentrations of Aroclor 1254 (a PCB) are higher in red drum from Bayou D'Inde than in other parts of the estuary, but that the concentrations are only based on two samples. It appears that more testing of the fish and water column is needed in order to identify the sources of this PCB contamination, prior to establishing TMDL's and WLA's for this pollutant.

Equistar **Comment: 005/0007** **Response: 005/0007**

The document states that only two of the five facilities that discharge to the bayou are permitted to discharge these pollutants. Each of the five facilities would be required to monitor effluents quarterly to demonstrate compliance with these waste load allocations. Our facility has several years of weekly analytical data, which demonstrates that this pollutant is not present in the outfall discharge water from the facility. Because of our previous demonstration, our current water permit has a less frequent measuring requirement of once per year. Subsequent analyses on a quarterly basis are not necessary. Quarterly analyses should not be required for those facilities whom have successfully performed this demonstration in the past and are currently continuing to monitor at a less frequent basis per their NPDES/LPDES water permits.

Equistar **Comment: 005/0008** **Response: 004/0033**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" copper.LDEQ (in a letter to EPA dated August 20,2001) provided information for delisting of copper from the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901).

Equistar **Comment: 005/0009** **Response: 004/0034**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" several Court-Ordered "categorical" impairments.

LDEQ (in a letter to EPA dated October 10,2001) provided information clarifying the listings of "Priority organics" and "Non-priority organics" for the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901), and other segments. Based on this information LDEQ stated that the only POCs which are suspected cause of waterbody impairment are:

Hexachlorobenzene, Hexachlorobutadiene, and PCBs for Bayou D'Inde (only).

LDEQ stated that no other use impairments for organic POCs have been documented.

LDEQ (In the same letter to EPA dated October 10,2001) provided information clarifying the listings of "Other inorganics" for Bayou D'Inde (030901). LDEQ stated that this listing was for general information purposes and not a listing for a specific parameter.

Equistar **Comment: 005/0010** **Response: 004/0035**

Notwithstanding the above, EPA has sought to select POCs for these "categorical" impairments by evaluating information from several studies of Calcasieu Estuary area which were not designed to support TMDL determinations.

In the Draft TMDL EPA states that data from the following seven reports were reviewed and evaluated to identify POCs:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou D'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of the Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

In each case these reports were the result of limited water and sediment quality investigations that were intended to focus on specific legacy contamination issues. These studies have a number of limitations which render them unsuitable for use in identifying TMDL POCs

The sampling schemes—locations, depths, compositing, etc—of these studies were primarily designed to evaluate known or suspected areas of contamination (i.e., "hot spots") within segments. The studies were not designed to provide, and do not provide, a statistically representative set of data for the respective segments. Absent a statistically valid sampling scheme (e.g. random sampling or grid sampling), the findings of POCs above reference levels is only indicative of localized contamination in the specific areas of investigation.

Equistar **Comment: 005/0012** **Response: 004/0037**

EPA should eliminate selection of POCs solely based on localized "hot spot" sediment data.

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Equistar **Comment: 005/0013** **Response: 004/0038**

The LDEQ information referred to under 2a) above—combined with the absence of data showing presence in segment water or sediment above reference levels—should be sufficient grounds to delist the following POCs:

Phenol, Bayou Verdine (030306)

Bromoform, Bayou D'Inde (030901)

1,1,2,2 Tetrachloroethane, Bayou D'Inde (030901)

Equistar **Comment: 005/0014** **Response: 002/0003**

Water and sediment quality data in these studies were not developed using consistent Data Quality Objectives (DQOs) appropriate for a TMDL process. The reference levels for POCs requires very low detection limits. There is no indication that the above studies used appropriate field and laboratory techniques necessary to assure the quality of these results, particularly a reasonable minimization of false positives at the reference level.

Equistar **Comment: 005/0015** **Response: 004/0040**

EPA's Draft TMDL does not address whether the above studies found the POCs under conditions consistent with application of the reference level—such as those relevant to POC fate, mobility, chemical form/stability, bioavailability, and biotoxicity.

Equistar **Comment: 005/0016** **Response: 004/0041**

Water quality references levels are for dissolved concentrations and EPA should be evaluating only results for dissolved concentrations of POCs.

Equistar **Comment: 005/0017** **Response: 004/0042**

Reference levels for marine conditions should be applied to marine waters and reference levels for fresh water should be applied to samples from fresh conditions.

Equistar **Comment: 005/0018** **Response: 004/0043**

Reference levels for fresh water must adjusted for hardness.

Equistar **Comment: 005/0019** **Response: 003/0004**

Other factors affecting the application of water quality reference levels should be considered (e.g. using techniques similar to a Water Effects Ratio study.)

Equistar **Comment: 005/0020** **Response: 004/0045**

Reference levels that are not appropriate to local biota should no be used.

Equistar **Comment: 005/0021** **Response: 004/0046**

Sediment reference levels should be adjusted based on sediment mineral type, soil type, AVS/SEM ratio, and other relevant characteristics.

Equistar **Comment: 005/0022** **Response: 004/0047**

Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Equistar **Comment: 005/0023** **Response: 004/0052**

EPA has not provided the public with adequate notice of the selection of specific POCs to allow for comment on the "listing" process or the opportunity to provide additional sampling and evaluations.

Interested parties in the Lake Charles area have demonstrated willingness to undertake detailed sampling studies—e.g., using "clean techniques"—for specific POCs that had previously been identified in the Court-Ordered List (e.g. copper). Interested parties in the Lake Charles area would like to have an opportunity to provide additional data on each of the 19 selected POCs, prior to EPA final determination of a TMDL.

Equistar **Comment: 005/0024** **Response: 004/0053**

EPA's "flagging method" for identifying POCs from previous investigation data is not appropriate for a final TMDL determination.

As explained on page ES-1 of the Draft TMDL, EPA has used a simple screening method to select POCs:

> Pollutants with more than one exceedance of chronic water quality criteria, or with the mean of detected values exceeding human health criteria; or
>
> Pollutants with sediment concentrations exceeding ESGs or ERMs for 10% or more of samples.

This selection scheme is commonly used as a "screening" technique for identifying POCs which will then be the subject of a more rigorous, statistically robust investigation. The results of this subsequent phase of investigation are then used for decision-making purposes (i.e. formal risk assessment, remedial decisions, treatment decisions, etc.). The use of a screening technique for making final selection of POCs is wholly inappropriate and has no scientific basis. It is also inconsistent with established EPA guidance and nationally recognized methodologies for pollution or contamination management.

The NRC Report states: "Statistical inference procedures must be used on the sample data to test hypotheses about whether the actual condition of the waterbody meets the criterion."

Equistar **Comment: 005/0026** **Response: 004/0001**

EPA has not made use of statistical techniques for evaluating the full range of results for POCs but rather has arbitrarily chosen to evaluate only exceedances.

A selection method based on finding "more than one exceedance" is arbitrary and has no sound scientific or statistical basis.

Equistar **Comment: 005/0028** **Response: 004/0057**

To evaluate a set of results for comparison with a reference level good scientific, statistical practice requires an appropriate estimate of central tendency—appropriate to the type distribution—and use of this as the benchmark for comparison. (Nonparametric statistical techniques may be appropriate for certain data distributions.)

Equistar **Comment: 005/0029** **Response: 004/0058**

Good scientific practice also requires that nondetect values be assigned a surrogate value consistent with the data quality and general nature of the evaluation. Calculation of the "mean of detected values" is not appropriate since it biases the evaluation.

Equistar **Comment: 005/0030** **Response: 004/0059**

EPA's use of sediment results and sediment reference levels is not appropriate to selection of POCs for a TMDL determination.

Recent investigations suggest that most sediment POC contamination, where it does exist, is the result of past, localized, historic events or practices. Given the regional sedimentation conditions in the estuary, contaminated sediments are probably undergoing active burial.

Equistar **Comment: 005/0031** **Response: 004/0060**

There is no information presented on whether the investigation sediment data reflects conditions of sediments currently exposed to water column. Sediment quality data are not correlated to any deposition dating information. It is likely that most areas of contaminated sediments are buried under more recently deposited sediments and not exposed to the water column. Covers as thin as a fraction of an inch can provide an effective barrier to sediment contamination mobility.

Equistar **Comment: 005/0032** **Response: 004/0061**

Even assuming sediment results are indicative of conditions at the water column interface, EPA does not present any scientific evidence that sediment conditions are substantially affecting water quality. Given that the TMDL endpoints are water quality criteria for dissolved concentrations, EPA should present a detailed justification—based on scientifically valid, statistically representative, segment-specific data—for using sediment conditions as a basis for inferring the need for a water column POCs and TMDLs.

Equistar **Comment: 005/0033** **Response: 004/0062**

ESGs and ERMs are not promulgated standards for protection of water quality and therefore should not be used as sole references for the selection of POCs. The EPA should remove the following POCs since sediment results were the only basis for their selection:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Equistar **Comment: 005/0034** **Response: 004/0063**

The NRC Report specifically recommends movement of waterbodies from a preliminary list to an action list on the basis of narrative criteria.

Equistar **Comment: 005/0035** **Response: 004/0064**

ESGs and ERMs are not promulgated standards for protection of water quality and absent a rigorous scientific justification should not be used as supporting references for the selection of POCs. EPA should eliminate consideration of sediment results in the determination of whether the following compounds warrant selection as POCs:

Mercury, Bayou D'Inde (030901)

Mercury, Calcasieu Ship Channel (030301)

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

Equistar **Comment: 005/0036** **Response: 004/0109**

EPA should provide water quality endpoints based on dissolved concentrations of POCs.LDEQ's water quality standards are specifically promulgated as dissolved standards since chronic aquatic toxicity and human health criteria are both based on uptake of dissolved fractions. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether dissolved concentrations of proposed POCs exceed appropriate reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, should be provided on a dissolved basis.

Equistar **Comment: 005/0037** **Response: 004/0110**

EPA should provide freshwater quality endpoints for nickel and copper in fresh portions of segments.LDEQ requires that freshwater chronic aquatic toxicity criteria be applied for nickel (a POC in Bayou Verdine and Bayou D'Inde) and copper (a POC in the Calcasieu Ship Channel and Bayou D'Inde) and be adjusted for hardness. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether nickel and copper exceed appropriate

freshwater, hardness adjusted reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, for nickel and copper should take into account fresh conditions and hardness.

Equistar **Comment: 005/0038** **Response: 004/0111**

EPA should evaluate stream specific conditions that may result in adjusting endpoints. (Table 2. Summary of POCs)

Other factors can affect water quality criteria for toxic POCs and chronic aquatic toxicity and human health criteria that are applicable to conditions in one geographic area may not be applicable to the Calcasieu Estuary. Segment specific Water Effects Ratio studies should be undertaken to evaluate if "generic" endpoints for POCs are applicable.

Equistar **Comment: 005/0039** **Response: 004/0113**

EPA should provide detailed references, data sets, and copies of actual calculations for the flow estimates.

The low flow estimate for the Calcasieu Ship Channel—Salt Water Barrier to Moss appears to be in error.The EPA low flow value appears to be the lowest daily flow for the Calcasieu River at the Kinder gauging station for 1999 (Ref. 1). It is not a 7Q10 flow. In addition, this station is above the confluence with the West Fork and Houston River. Ref 2 provides a factor of 1.86 for adjusting 7Q10 flow at Kinder to the Saltwater Barrier. If 258 cfs is used as the low flow at Kinder, an appropriate estimate for low flow at the Saltwater Barrier would be 479 cfs.

Alternatively Ref. 2 provides a 7Q10 flow estimate for the Calcasieu River at the Saltwater Barrier of 375 cfs.

However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided an estimate of the critical flow based on tide cycle of 1,917 cfs at Louisiana Pigment (Ref. 3)

The low flow estimate for Bayou D'Inde appears to be in error.

Ref. 4 provides a 7Q10 estimate of 7.6 cfs (4.9 mgd). However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided estimates of the critical flow based on tide cycle of 34.4 and 31.1 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). Just above the PPG canal (PPG Outfall No. 001) near the Bayou D'Inde critical flow based on tide-cycle is reported to be 121 cfs (Ref 7). (Table 3. Summary of Segment Flow Estimates)

The estimates for the low flows on the remaining segments also appear to be in error.

Ref. 4 provides a 7Q10 estimate of 1.4 cfs (0.9 mgd) for Bayou Verdine. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. EPA should develop critical flow estimates based on tide cycle for the remaining segments.

The estimates for mean flows for the segments appear to be in error.

The 1999 mean flow at Kinder was 2,690 cfs (Ref. 1) Applying the area factor of 1.86 (Ref. 2) a mean flow estimate is 4,994 cfs. EPA should develop mean flow estimates based appropriate data for the remaining segments.

The estimate for harmonic mean flow for the Calcasieu Ship Channel appears to be in error.LDEQ has provided an estimates of the harmonic mean flow at Louisiana Pigment of 5,750 cfs (Ref. 3).

The estimate for harmonic mean flow for Bayou D'Inde appears to be in error.LDEQ has provided estimates of the harmonic mean flow of 103.3 and 93.4 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). At PPG near the mouth of Bayou D'Inde the harmonic mean flow is reported to be 363 cfs (Ref 7)

The estimates for harmonic mean flows on the remaining segments also appear to be in error.EPA should develop estimates of harmonic mean flow on the remaining segments based appropriate data.

Equistar **Comment: 005/0047** **Response: 004/0028**

EPA's information on the location of several major point-source discharge outfalls contain numerous significant errors.

Table 4 shows these errors include:

Concoco—Primary outfalls have been moved to the Calcasieu Ship Channel (Segment 030301).

Condea Vista—Permit being finalized to move primary outflows to the Calcasieu Ship Channel (Segment 030301).

Citgo—Outfalls for CitCon portion of operations (001, 002, 012) are to Bayou D'Inde (Segment 030901).

Lyondell—Stormwater Outfalls 025, 026, and 032 are to Bayou Verdine (Segment 030306).

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary outfalls to ensure that they are located on the proper segment.

Equistar **Comment: 005/0048** **Response: 004/0026**

EPA's estimates of mean flow for most major point-source discharge outfalls contain numerous significant errors.

Table 4 shows these errors include:

Citgo Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 5.

Lyondell Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 4.

PPG Bayou D'Inde (Segment 030901) Discharge—off by a Factor of 10.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of mean flows for each segment.

Equistar **Comment: 005/0049** **Response: 004/0030**

EPA's estimates of average maximum flow for most major point-source discharge outfalls contain numerous significant errors.

EPA's estimates of maximum flow contain similar errors. Since these errors reflect only a partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of maximum flows for each segment.

Equistar **Comment: 005/0050** **Response: 004/0031**

EPA's should determine discharge maximum flows for use in chronic toxicity TDMLs using a statistically valid approach.

EPA's estimate of average monthly maximum discharge flow is arbitrary. A statistically valid representation of maximum flow for an appropriate return period should be determine. This is particularly important since a significant portion of some facilities' loads may be associated with stormwater discharges.

Equistar **Comment: 005/0051** **Response: 004/0025**

EPA needs to correct errors in the segment flow.

Equistar **Comment: 005/0052** **Response: 004/0026**

EPA needs to correct errors in facility outfall flow.

Equistar **Comment: 005/0053** **Response: 005/0053**

EPA needs to determine if certain POC point source loadings are associated with point source stormwater outfalls and develop statistically valid segment flow estimates.

For some POCs, significant point source loads may be attributable to stormwater outfalls. In these cases, use of low flows for dilution are not reasonable since facility discharges of the POC would occur during periods when significantly higher stream flows would be present. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate segment flow estimates for stormwater events.

Equistar **Comment: 005/0054** **Response: 004/0027**

EPA needs to substitute statistically valid estimates of facility flows for all stormwater driven TMDL mass balance calculations.

EPA's method for estimating facility maximum discharge (for use with chronic toxicity POC TMDLs) is arbitrary and does not reflect reasonable, statistically-based estimates. Maximum flows are associated with stormwater discharges. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate facility flow estimates for stormwater events.

Equistar **Comment: 005/0055** **Response: 005/0055**

Due the errors in locating discharge outfalls and estimating point-source flows EPA has not included allocations for all potential point sources.

Equistar **Comment: 005/0056** **Response: 005/0056**

PAHs may be present in petroleum refinery point-source discharges. EPA should include wasteload allocations for PAHs for all petroleum refineries.

Benzo(a)anthracene, Benzo(a)pyrene, and Chrysene are reported to be common constituents in typical refinery effluents. (EPA, Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing, and Combustion, National Risk Laboratory, September 2001.) Allocations of PAHs should be provided to:

Conoco—Calcasieu Ship Channel (Segment 030301)

Citgo—Calcasieu Ship Channel (Segment 030301)

Citgo—Bayou D'Inde (Segment 030901)

Equistar **Comment: 005/0057** **Response: 005/0057**

Given the indeterminate level of POCs in point-source stormwater, and very low wasteload allocations for these POCs, EPA should include wasteload allocations for POCs for all major facilities.

No determinations have been made on the presence of POCs in stormwater at the low levels indicated in the TMDL. Therefore, all major facilities with point-source discharges of stormwater should receive an allocation of each POC.

Equistar **Comment: 005/0058** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements.

There is currently a significant lack of capacity for obtaining "clean techniques" laboratory analyses. There are currently only two LDEQ certified laboratories which are offering "clean techniques" and both are out of state (Madison, Wisconsin and Seattle, Washington).

Equistar **Comment: 005/0059** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of "generic" endpoints, and facility flows.

Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of a new information.

Equistar **Comment: 005/0060** **Response: 004/0123**

The TMDL endpoints are for dissolved concentrations in the water column. All TMDL water quality testing should be performed on a dissolved basis.

Equistar **Comment: 005/0061** **Response: 004/0124**

The TMDL endpoints are for dissolved concentrations in the water column. TMDL monitoring of sediment quality should be eliminated unless and until scientific evidence of sediment induced impairment of segment water quality can be demonstrated. Further study of this linkage is certainly warranted.

Equistar **Comment: 005/0062** **Response: 004/0125**

Facilities should be allowed to report loadings on a "net" basis for POCs with non-point source load allocations.

Many facilities in the Calcasieu Estuary utilize water from the segments for process and cooling water. "Background" loads in segment water—including upstream, tributary, atmospheric, and non-point source loads—are therefore present in this water at the point it is withdrawn and returned to the segment. EPA should expressly allow for dischargers to subtract all "background" contributions from the facility's measured final discharge load.

Equistar **Comment: 005/0063** **Response: 004/0126**

Facilities should be allowed to report loadings on a statistically valid, scientifically reasonable, averaged basis.

TMDL WLAs should be implemented as limitations on a statistically based measure of mean loadings. For human health criteria POCs, an annual mean loading is appropriate. For chronic aquatic criteria, a monthly average is appropriate.

Lyondell Chemical Company **Comment: 006/0001** **Response: 006/0001**

Lyondell believes that in several instances, there are significant omissions in data that should have been considered in the development of these TMDLs. Further concerns are that much data demonstrating that water quality standards are not being exceeded seemed to be ignored and that EPA did not use the mixing zone flows required by state rules for determining flows, particularly for tidally influenced waters. In addition it appears that EPA's contractor used models and/or guidance that have not been accepted by the scientific community. Specific concerns are addressed in the Technical Comments report dated 4/26/02.

Lyondell Chemical Company **Comment: 006/0002** **Response: 004/0033**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" copper.

LDEQ (in a letter to EPA dated August 20,2001) provided information for delisting of copper from the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901).

Lyondell Chemical Company **Comment: 006/0003** **Response: 004/0034**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" several Court-Ordered "categorical" impairments.

LDEQ (in a letter to EPA dated October 10,2001) provided information clarifying the listings of "Priority organics" and "Non-priority organics" for the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901), and other segments. Based on this information LDEQ stated that the only POCs which are suspected cause of waterbody impairment are:

Hexachlorobenzene, Hexachlorobutadiene, and PCBs for Bayou D'Inde (only).

LDEQ stated that no other use impairments for organic POCs have been documented.

LDEQ (In the same letter to EPA dated October 10,2001) provided information clarifying the listings of "Other inorganics" for Bayou D'Inde (030901). LDEQ stated that this listing was for general information purposes and not a listing for a specific parameter.

Lyondell Chemical Company **Comment: 006/0004** **Response: 004/0035**

Notwithstanding the above, EPA has sought to select POCs for these "categorical" impairments by evaluating information from several studies of Calcasieu Estuary area which were not designed to support TMDL determinations.

In the Draft TMDL EPA states that data from the following seven reports were reviewed and evaluated to identify POCs:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou D'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of the Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

In each case these reports were the result of limited water and sediment quality investigations that were intended to focus on specific legacy contamination issues. These studies have a number of limitations which render them unsuitable for use in identifying TMDL POCs.

Lyondell Chemical Company **Comment: 006/0005** **Response: 004/0035**

The sampling schemes—locations, depths, compositing, etc—of these studies were primarily designed to evaluate known or suspected areas of contamination (i.e., "hot spots") within segments. The studies were not designed to provide, and do not provide, a statistically representative set of data for the respective segments. Absent a statistically valid sampling scheme (e.g. random sampling or grid sampling), the findings of POCs above reference

levels is only indicative of localized contamination in the specific areas of investigation.

Lyondell Chemical Company **Comment: 006/0006** **Response: 004/0037**

EPA should eliminate selection of POCs solely based on localized "hot spot" sediment data.

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)
4,4'-DDT, Bayou Verdine (030306)
Methoxychlor, Bayou Verdine (030306)
Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)
Zinc, Bayou Verdine (030306)
Calcium, Bayou Verdine (030306)

Lyondell Chemical Company **Comment: 006/0007** **Response: 004/0038**

The LDEQ information referred to under 2a) above—combined with the absence of data showing presence in segment water or sediment above reference levels—should be sufficient grounds to delist the following POCs:

Phenol, Bayou Verdine (030306)
Bromoform, Bayou D'Inde (030901)
1,1,2,2 Tetrachloroethane, Bayou D'Inde (030901)

Lyondell Chemical Company **Comment: 006/0008** **Response: 002/0003**

Water and sediment quality data in these studies were not developed using consistent Data Quality Objectives (DQOs) appropriate for a TMDL process. The reference levels for POCs requires very low detection limits. There is no indication that the above studies used appropriate field and laboratory techniques necessary to assure the quality of these results, particularly a reasonable minimization of false positives at the reference level.

Lyondell Chemical Company **Comment: 006/0009** **Response: 004/0040**

EPA's Draft TMDL does not address whether the above studies found the POCs under conditions consistent with application of the reference level—such as those relevant to POC fate, mobility, chemical form/stability, bioavailability, and biotoxicity.

Lyondell Chemical Company **Comment: 006/0010** **Response: 004/0041**

Water quality references levels are for dissolved concentrations and EPA should be evaluating only results for dissolved concentrations of POCs.

Lyondell Chemical Company **Comment: 006/0011** **Response: 004/0042**

Reference levels for marine conditions should be applied to marine waters and reference levels for fresh water should be applied to samples from fresh conditions.

Lyondell Chemical Company **Comment: 006/0012** **Response: 004/0043**

Reference levels for fresh water must adjusted for hardness.

Lyondell Chemical Company **Comment: 006/0013** **Response: 003/0004**

Other factors affecting the application of water quality reference levels should be considered (e.g. using techniques similar to a Water Effects Ratio study.)

Lyondell Chemical Company **Comment: 006/0014** **Response: 004/0045**

Reference levels that are not appropriate to local biota should not be used.

Lyondell Chemical Company **Comment: 006/0015** **Response: 004/0046**

Sediment reference levels should be adjusted based on sediment mineral type, soil type, AVS/SEM ratio, and other relevant characteristics.

Lyondell Chemical Company **Comment: 006/0016** **Response: 004/0047**

Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Lyondell Chemical Company **Comment: 006/0017** **Response: 004/0052**

EPA has not provided the public with adequate notice of the selection of specific POCs to allow for comment on the "listing" process or the opportunity to provide additional sampling and evaluations.

Interested parties in the Lake Charles area have demonstrated willingness to undertake detailed sampling studies—e.g., using "clean techniques"—for specific POCs that had previously been identified in the Court-Ordered List (e.g. copper). Interested parties in the Lake Charles area would like to have an opportunity to provide additional data on each of the 19 selected POCs, prior to EPA final determination of a TMDL.

Lyondell Chemical Company **Comment: 006/0018** **Response: 004/0053**

EPA's "flagging method" for identifying POCs from previous investigation data is not appropriate for a final TMDL determination.

As explained on page ES-1 of the Draft TMDL, EPA has used a simple screening method to select POCs:

Pollutants with more than one exceedance of chronic water quality criteria, or with the mean of detected values exceeding human health criteria; or

Pollutants with sediment concentrations exceeding ESGs or ERMs for 10% or more of samples.

This selection scheme is commonly used as a "screening" technique for identifying POCs which will then be the subject of a more rigorous, statistically robust investigation. The results of this subsequent phase of investigation are then used for decision-making purposes (i.e. formal risk assessment, remedial decisions, treatment decisions, etc.). The use of a screening technique for making final selection of POCs is wholly inappropriate and has no scientific basis. It is also inconsistent with established EPA guidance and nationally recognized methodologies for pollution or contamination management.

The NRC Report states: "Statistical inference procedures must be used on the sample data to test hypotheses about whether the actual condition of the waterbody meets the criterion."

Lyondell Chemical Company **Comment: 006/0020** **Response: 004/0001**

EPA has not made use of statistical techniques for evaluating the full range of results for POCs but rather has arbitrarily chosen to evaluate only exceedances.

A selection method based on finding "more than one exceedance" is arbitrary and has no sound scientific or statistical basis.

Lyondell Chemical Company **Comment: 006/0022** **Response: 004/0057**

To evaluate a set of results for comparison with a reference level good scientific, statistical practice requires an appropriate estimate of central tendency—appropriate to the type distribution—and use of this as the benchmark for comparison. (Nonparametric statistical techniques may be appropriate for certain data distributions.)

Lyondell Chemical Company **Comment: 006/0023** **Response: 004/0058**

Good scientific practice also requires that nondetect values be assigned a surrogate value consistent with the data quality and general nature of the evaluation. Calculation of the "mean of detected values" is not appropriate since it biases the evaluation.

Lyondell Chemical Company **Comment: 006/0024** **Response: 004/0059**

EPA's use of sediment results and sediment reference levels is not appropriate to selection of POCs for a TMDL determination.

Recent investigations suggest that most sediment POC contamination, where it does exist, is the result of past, localized, historic events or practices. Given the regional sedimentation conditions in the estuary, contaminated sediments are probably undergoing active burial.

Lyondell Chemical Company **Comment: 006/0025** **Response: 004/0060**

There is no information presented on whether the investigation sediment data reflects conditions of sediments currently exposed to water column. Sediment quality data are not correlated to any deposition dating information. It is likely that most areas of contaminated sediments are buried under more recently deposited sediments and not exposed to the water column. Covers as thin as a fraction of an inch can provide an effective barrier to sediment contamination mobility.

Lyondell Chemical Company **Comment: 006/0026** **Response: 004/0061**

Even assuming sediment results are indicative of conditions at the water column interface, EPA does not present any scientific evidence that sediment conditions are substantially affecting water quality. Given that the TMDL endpoints are water quality criteria for dissolved concentrations, EPA should present a detailed justification—based on scientifically valid, statistically representative, segment-specific data—for using sediment conditions as a basis for inferring the need for a water column POCs and TMDLs.

Lyondell Chemical Company **Comment: 006/0027** **Response: 004/0062**

ESGs and ERMs are not promulgated standards for protection of water quality and therefore should not be used as sole references for the selection of POCs. The EPA should remove the following POCs since sediment results were the only basis for their selection:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Lyondell Chemical Company **Comment: 006/0028** **Response: 004/0063**

The NRC Report specifically recommends movement of waterbodies from a preliminary list to an action list on the basis of narrative criteria.

Lyondell Chemical Company **Comment: 006/0029** **Response: 004/0064**

ESGs and ERMs are not promulgated standards for protection of water quality and absent a rigorous scientific justification should not be used as supporting references for the selection of POCs. EPA should eliminate consideration of sediment results in the determination of whether the following compounds warrant selection as POCs:

Mercury, Bayou D'Inde (030901)

Mercury, Calcasieu Ship Channel (030301)

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

Lyondell Chemical Company **Comment: 006/0030** **Response: 004/0109**

EPA should provide water quality endpoints based on dissolved concentrations of POCs.

LDEQ's water quality standards are specifically promulgated as dissolved standards since chronic aquatic toxicity and human health criteria are both based on uptake of dissolved fractions. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether dissolved concentrations of proposed POCs exceed appropriate reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, should be provided on a dissolved basis.

Lyondell Chemical Company **Comment: 006/0031** **Response: 004/0110**

EPA should provide freshwater quality endpoints for nickel and copper in fresh portions of segments.

LDEQ requires that freshwater chronic aquatic toxicity criteria be applied for nickel (a POC in Bayou Verdine and Bayou D'Inde) and copper (a POC in the Calcasieu Ship Channel and Bayou D'Inde) and be adjusted for hardness. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether nickel and copper exceed appropriate freshwater, hardness adjusted reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, for nickel and copper should take into account fresh conditions and hardness.

Lyondell Chemical Company **Comment: 006/0032** **Response: 004/0111**

EPA should evaluate stream specific conditions that may result in adjusting endpoints. (Table 2. Summary of POCs)

Other factors can affect water quality criteria for toxic POCs and chronic aquatic toxicity and human health criteria that are applicable to conditions in one geographic area may not be applicable to the Calcasieu Estuary. Segment specific Water Effects Ratio studies should be undertaken to evaluate if "generic" endpoints for POCs are

applicable.

Lyondell Chemical Company **Comment: 006/0033** **Response: 004/0113**

EPA should provide detailed references, data sets, and copies of actual calculations for the flow estimates.

The low flow estimate for the Calcasieu Ship Channel—Salt Water Barrier to Moss appears to be in error.

The EPA low flow value appears to be the lowest daily flow for the Calcasieu River at the Kinder gauging station for 1999 (Ref. 1). It is not a 7Q10 flow. In addition, this station is above the confluence with the West Fork and Houston River. Ref 2 provides a factor of 1.86 for adjusting 7Q10 flow at Kinder to the Saltwater Barrier. If 258 cfs is used as the low flow at Kinder, an appropriate estimate for low flow at the Saltwater Barrier would be 479 cfs.

Alternatively Ref. 2 provides a 7Q10 flow estimate for the Calcasieu River at the Saltwater Barrier of 375 cfs.

However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided an estimate of the critical flow based on tide cycle of 1,917 cfs at Louisiana Pigment (Ref. 3)

The low flow estimate for Bayou D'Inde appears to be in error.

Ref. 4 provides a 7Q10 estimate of 7.6 cfs (4.9 mgd). However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided estimates of the critical flow based on tide cycle of 34.4 and 31.1 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). Just above the PPG canal (PPG Outfall No. 001) near the Bayou D'Inde critical flow based on tide-cycle is reported to be 121 cfs (Ref 7). (Table 3. Summary of Segment Flow Estimates)

The estimates for the low flows on the remaining segments also appear to be in error.

Ref. 4 provides a 7Q10 estimate of 1.4 cfs (0.9 mgd) for Bayou Verdine. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. EPA should develop critical flow estimates based on tide cycle for the remaining segments.

The estimates for mean flows for the segments appear to be in error.

The 1999 mean flow at Kinder was 2,690 cfs (Ref. 1) Applying the area factor of 1.86 (Ref. 2) a mean flow estimate is 4,994 cfs. EPA should develop mean flow estimates based appropriate data for the remaining segments.

The estimate for harmonic mean flow for the Calcasieu Ship Channel appears to be in error.

LDEQ has provided an estimates of the harmonic mean flow at Louisiana Pigment of 5,750 cfs (Ref. 3).

The estimate for harmonic mean flow for Bayou D'Inde appears to be in error.

LDEQ has provided estimates of the harmonic mean flow of 103.3 and 93.4 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). At PPG near the mouth of Bayou D'Inde the harmonic mean flow is reported to be 363 cfs (Ref 7)

The estimates for harmonic mean flows on the remaining segments also appear to be in error.

EPA should develop estimates of harmonic mean flow on the remaining segments based appropriate data.

Lyondell Chemical Company **Comment: 006/0041** **Response: 004/0028**

EPA's information on the location of several major point-source discharge outfalls contain numerous significant errors.

Table 4 shows these errors include:

Concoco—Primary outfalls have been moved to the Calcasieu Ship Channel (Segment 030301).

Condea Vista—Permit being finalized to move primary outflows to the Calcasieu Ship Channel (Segment 030301).

Citgo—Outfalls for CitCon portion of operations (001, 002, 012) are to Bayou D'Inde (Segment 030901).

Lyondell—Stormwater Outfalls 025, 026, and 032 are to Bayou Verdine (Segment 030306).

PPG---Outfall 002 to Calcasieu Ship Channel (Segment 030301) was not included

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary outfalls to ensure that they are located on the proper segment.

Lyondell Chemical Company **Comment: 006/0042** **Response: 004/0026**

EPA's estimates of mean flow for most major point-source discharge outfalls contain numerous significant errors.

Table 4 shows these errors include:

Citgo Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 5.

Lyondell Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 4.

PPG Bayou D'Inde (Segment 030901) Discharge—off by a Factor of 10.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of mean flows for each segment.

Lyondell Chemical Company **Comment: 006/0043** **Response: 004/0030**

EPA's estimates of average maximum flow for most major point-source discharge outfalls contain numerous significant errors.

EPA's estimates of maximum flow contain similar errors. Since these errors reflect only a partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of maximum flows for each segment.

Lyondell Chemical Company **Comment: 006/0044** **Response: 004/0031**

EPA's should determine discharge maximum flows for use in chronic toxicity TDMLs using a statistically valid approach.

EPA's estimate of average monthly maximum discharge flow is arbitrary. A statistically valid representation of maximum flow for an appropriate return period should be determine. This is particularly important since a significant portion of some facilities' loads may be associated with stormwater discharges.

Lyondell Chemical Company **Comment: 006/0045** **Response: 004/0025**

EPA needs to correct errors in the segment flow.

Lyondell Chemical Company **Comment: 006/0046** **Response: 004/0026**

EPA needs to correct errors in facility outfall flow.

Lyondell Chemical Company **Comment: 006/0047** **Response: 005/0053**

EPA needs to determine if certain POC point source loadings are associated with point source stormwater outfalls and develop statistically valid segment flow estimates.

For some POCs, significant point source loads may be attributable to stormwater outfalls. In these cases, use of low flows for dilution are not reasonable since facility discharges of the POC would occur during periods when significantly higher stream flows would be present. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate segment flow estimates for stormwater events.

Lyondell Chemical Company **Comment: 006/0048** **Response: 004/0027**

EPA needs to substitute statistically valid estimates of facility flows for all stormwater driven TMDL mass balance calculations.

EPA's method for estimating facility maximum discharge (for use with chronic toxicity POC TMDLs) is arbitrary and does not reflect reasonable, statistically-based estimates. Maximum flows are associated with stormwater discharges. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate facility flow estimates for stormwater events.

Lyondell Chemical Company **Comment: 006/0049** **Response: 005/0055**

Due the errors in locating discharge outfalls and estimating point-source flows EPA has not included allocations for all potential point sources.

Lyondell Chemical Company **Comment: 006/0050** **Response: 005/0056**

PAHs may be present in petroleum refinery point-source discharges. EPA should include wasteload allocations for PAHs for all petroleum refineries.

Benzo(a)anthracene, Benzo(a)pyrene, and Chrysene are reported to be common constituents in typical refinery effluents. (EPA, Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing, and Combustion, National Risk Laboratory, September 2001.) Allocations of PAHs should be provided to:

Conoco—Calcasieu Ship Channel (Segment 030301)
Citgo—Calcasieu Ship Channel (Segment 030301)
Citgo—Bayou D'Inde (Segment 030901)

Lyondell Chemical Company **Comment: 006/0051** **Response: 005/0057**

Given the indeterminate level of POCs in point-source stormwater, and very low wasteload allocations for these POCs, EPA should include wasteload allocations for POCs for all major facilities.

No determinations have been made on the presence of POCs in stormwater at the low levels indicated in the TMDL. Therefore, all major facilities with point-source discharges of stormwater should receive an allocation of each POC.

Lyondell Chemical Company **Comment: 006/0052** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements.

There is currently a significant lack of capacity for obtaining "clean techniques" laboratory analyses. There are currently only two LDEQ certified laboratories which are offering "clean techniques" and both are out of state (Madison, Wisconsin and Seattle, Washington).

Lyondell Chemical Company **Comment: 006/0053** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of "generic" endpoints, and facility flows.

Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of a new information.

Lyondell Chemical Company **Comment: 006/0054** **Response: 004/0127**

Given the many identified limitations of the science in this TMDL process, all proposed toxic TMDLs should be clearly qualified by EPA as "provisional". EPA should include a section specifically discussing the limitations of the science in establishing toxic TMDLs for the Calcasieu Estuary and should clearly identify that such TMDLs are provisional. In this section EPA should set forth a process for prompt review and revision of the TMDL PA upon obtaining new information. Such information could be generated either by EPA itself, LDEQ or other interested parties.

Lyondell Chemical Company **Comment: 006/0055** **Response: 006/0055**

EPA should specifically acknowledge that future ambient water quality information will result in delisting of POCs and rescinding of TMDLs/

Lyondell Chemical Company **Comment: 006/0056** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements.

There is currently a significant lack of capacity for obtaining "clean techniques" laboratory analyses. There are currently only two LDEQ certified laboratories which are offering "clean techniques" and both are out of state (Madison, Wisconsin and Seattle, Washington).

Lyondell Chemical Company **Comment: 006/0057** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of "generic" endpoints, and facility flows.

Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of a new information.

Lyondell Chemical Company **Comment: 006/0058** **Response: 004/0123**

The TMDL endpoints are for dissolved concentrations in the water column. All TMDL water quality testing should

be performed on a dissolved basis.

Lyondell Chemical Company **Comment: 006/0059** **Response: 004/0124**

The TMDL endpoints are for dissolved concentrations in the water column. TMDL monitoring of sediment quality should be eliminated unless and until scientific evidence of sediment induced impairment of segment water quality can be demonstrated. Further study of this linkage is certainly warranted.

Lyondell Chemical Company **Comment: 006/0060** **Response: 004/0125**

Facilities should be allowed to report loadings on a "net" basis for POCs with non-point source load allocations.

Many facilities in the Calcasieu Estuary utilize water from the segments for process and cooling water. "Background" loads in segment water—including upstream, tributary, atmospheric, and non-point source loads—are therefore present in this water at the point it is withdrawn and returned to the segment. EPA should expressly allow for dischargers to subtract all "background" contributions from the facility's measured final discharge load.

Lyondell Chemical Company **Comment: 006/0061** **Response: 004/0126**

Facilities should be allowed to report loadings on a statistically valid, scientifically reasonable, averaged basis.

TMDL WLAs should be implemented as limitations on a statistically based measure of mean loadings. For human health criteria POCs, an annual mean loading is appropriate. For chronic aquatic criteria, a monthly average is appropriate.

Sasol North America, Inc. **Comment: 007/0001** **Response: 007/0001**

Sasol will soon receive an NPDES permit from EPA Region 6 that will authorize discharge through a high-rate diffuser into the upper Calcasieu Estuary (subsegment 030301) just upstream of the Clooney Island loop. The draft TMDL lists the Sasol discharge into Bayou Verdine. Upon issuance of the NPDES permit, the process wastewater will discharge to the Calcasieu River, except during emergencies or when maintenance is being performed on the effluent pipeline or diffuser.

Sasol North America, Inc. **Comment: 007/0002** **Response: 007/0002**

EPA exceeded its authority for the pollutants included in TMDL. Section 303(d) of the Clean Water Act is very clear that TMDLs are to be developed for pollutants that exceed water quality standards, not for ad hoc lists of pollutants generated from guidance.

Sasol North America, Inc. **Comment: 007/0003** **Response: 004/0022**

The TMDL mass balance methodology used by EPA is overly simplistic. A more rigorous analysis using fate and transport modeling, such as WASP6 and similar models, is considered necessary particularly for a system as hydraulically complex as the Calcasieu Estuary.

Sasol North America, Inc. **Comment: 007/0004** **Response: 004/0062**

The draft TMDL has not developed an adequate scientific basis for establishing TMDLs to address sediment toxicity.

Sasol North America, Inc. **Comment: 007/0005** **Response: 004/0022**

The TMDL mass balance methodology used by EPA is overly simplistic, particularly for a system as hydraulically complex as the Calcasieu Estuary. Such complexity requires fate and transport modeling to generate scientifically acceptable TMDLs. This modeling should include hydrodynamics and water column/sediment pollutant interactions. EPA used a mass balance approach to model toxic pollutants in the Calcasieu Estuary system. The mass balance approach is most problematic for simulating compliance with water quality criteria that have a short-term exposure basis, e.g., acute and chronic aquatic life criteria. A mass balance across an entire surface water subsegment that is miles in length and contains islands and looping channels (e.g., the Upper Calcasieu Estuary and Ship Channel) is inadequate for demonstrating compliance with water quality criteria. The mass balance analysis is especially problematic for aquatic life criteria because temporal-spatial concentration differences must be properly simulated to assure that waste load allocations are protective, but not overly so. The Louisiana Department of Environment Quality's (LDEQ) water quality criteria and implementation methods are designed to assure that the standards are met at all places in the water body, but the TMDL approach used by EPA fails to accomplish this objective.

Sasol North America, Inc. **Comment: 007/0006** **Response: 004/0023**

The hydrodynamics of a surface water body determine the transport of chemicals and particulates. As described in the draft TMDL, the Calcasieu Estuary, with its ship channel, islands, lakes, and tributary bayous has very complex hydraulics and pollutant transport. Rather than justifying the simplifying assumption of a mass balance, this complexity demands development of a hydrodynamic model that can adequately simulate the movement of water and transport of pollutants. The foundation of a TMDL is the ability to satisfactorily simulate the hydraulics of the surface water body of concern. This has not been done for the draft TMDL.

Sasol North America, Inc. **Comment: 007/0007** **Response: 004/0024**

Another major deficiency of the TMDL performed by EPA is the failure of the mass balance to account for pollutant fate including both water column-sediment interactions, partitioning of pollutants to solids, and processes such as biodegradation and volatilization. These processes are not considered in this TMDL, but are necessary in order to develop technically supported waste load allocations.

Sasol North America, Inc. **Comment: 007/0008** **Response: 002/0008**

EPA must not use a list of "pollutants of concern" (POC) as the target pollutants for TMDLs. Section 303(d) of the Clean Water Act is very clear that TMDLs are to be performed for pollutants that exceed water quality standards, not for ad hoc lists of pollutants generated from guidance.

Section 303(d)(1)(A) of the Clean Water Act (CWA) requires that:

"Each State shall identify those waters or parts thereof within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters."

Section 303(d)(1)(C) requires that:

"Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 304(a)(2) as suitable for such calculation."

Section 304(a)(2) of the CWA establishes the procedures that states must follow to adopt water quality criteria and standards to protect designated uses. Pollutants identified under section 304(a)(2), as identified in section 303(d)(1)(C), are those pollutants specifically identified in a state's water quality standards. In the case of narrative standards for toxic pollutants, a scientifically based translator must be developed by the state to implement the standard.

Sasol North America, Inc. **Comment: 007/0009** **Response: 002/0001**

The draft TMDL uses pollutant targets based on its POC list. Pollutants on the POC list that have no numeric criteria in Table 1 of LAC 33:1131 have no legal status for the TMDL and should not be used as targets. Where a narrative standard is the basis for identification of a designated use impairment (i.e. on the section 303(d) list), then EPA has the obligation to develop a scientifically-supported site-specific numeric water quality criterion for each and all pollutants that can be correlated to the impairment. It is unacceptable to use pollutant concentrations presented in guidance as TMDL targets, because these are not water quality standards and they have not been demonstrated to be the cause of toxicity at any specific location.

Sasol North America, Inc. **Comment: 007/0010** **Response: 004/0071**

Sediment quality guidance values and EPA's national water quality criteria cannot be used for a TMDL because they have not been adopted as provisions of the LDEQ's water quality standards. EPA has used the LDEQ surface water quality standards (LAC 33:IX.1101-1123) as compliance targets for the TMDL. The LDEQ criteria are appropriate for this purpose because they were adopted by LDEQ through formal rulemaking, including public comment, and have been approved by EPA.

Sasol North America, Inc. **Comment: 007/0011** **Response: 004/0072**

The EPA also used several other databases as TMDL targets for specific pollutants: (1) EPA national water quality criteria (EPA WQC) (63 Fed. Reg. 68354, December 10, 1998); (2) effects range-median (ERM) values for sediments that were developed by the National Oceanic and Atmospheric Administration (NOAA); and EPA's equilibrium partitioning sediment guidelines (ESG). None of these databases that were used as TMDL targets have been adopted as Louisiana water quality criteria. They have no legal standing and have not been subject to public

review and comment through a rulemaking process at either the national level or in Louisiana. Therefore, they cannot be legally used as TMDL targets unless the TMDL shows that they are correlated to water column or sediment toxicity, or bioaccumulation in aquatic animals, to a sufficient extent that they can be used in a cause-effect relationship to develop waste load allocations (WLA) and load allocations (LA) for point and non-point sources, respectively.

Sasol North America, Inc. **Comment: 007/0012** **Response: 004/0073**

Sediments can be listed as impaired based on measured toxicity and the LDEQ's narrative toxicity standard (LAC 33:IX.1113.B.5); however, a toxicity identification evaluation (TIE) must be performed to identify the specific pollutant(s) causing the toxicity before a TMDL can be performed. EPA has not performed a TIE for sediments, or the water column, that identifies the pollutant or pollutants that are allegedly causing the measured toxicity. Neither have they presented in the draft TMDL any scientific analysis that demonstrates that the EPA WQC, NOAA ERM, or EPA ESG values have any relationship to the measured sediment and water column toxicity identified in certain segments of the estuary. Therefore, the use of these "targets" that are based on numeric levels in EPA and NOAA guidance that has never undergone review and comment as substitute water quality standards for Louisiana is unlawful and technically unsupported.

Sasol North America, Inc. **Comment: 007/0013** **Response: 004/0062**

NOAA ERM concentrations are not appropriate for establishing site-specific sediment toxicity correlations or TMDL targets. NOAA developed its sediment quality guidelines, including the ERM values, to assist it in the identification of sediments that required additional study in its National Status and Trends Program. These sediment quality guidelines are not intended to be sediment criteria and should not be used for this purpose. NOAA's summary of its guidelines includes the following statement:

"The SQGs were not promulgated as regulatory criteria or standards. They were not intended as cleanup or remediation targets, nor as discharge attainment targets. Nor were they intended as pass-fail criteria for dredged material disposal decisions or any other regulatory purpose. Rather, they were intended as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments."

The NOAA SQGs cannot be used as de facto sediment quality criteria because they represent a range of aquatic organism species, sediment characteristics, and aquatic environments. The SQGs do not consider the bioavailabilty of pollutants that are influenced by local sediment and water chemistry. Likewise, the sensitivity of resident aquatic species is not reflected by the SQGs. Therefore, use of the NOAA SQGs as TMDL targets for certain pollutants found in sediments is not scientifically supported and cannot be the basis for the draft TMDLs.

EPA's SQGs are not sediment quality criteria and are not appropriate as TMDL targets.EPA's SQGs are based on the equilibrium partitioning concept. EPA originally proposed these values as sediment quality criteria but subsequently has identified them as guidelines because they do not reflect site-specific conditions and bioavailability of pollutants with sufficient reliability to be used as numeric sediment quality criteria. This is true even though they consider the sediment organic content and acid volatile sulfides concentrations to predict the potential toxicity of nonionic organic chemicals and metals, respectively. The EPA SQGs are intended to be used in the same way as the NOAA SQGs — to identify sediments that merit additional study to determine whether toxicity is present and, if so, to conduct the required site-specific studies to identify the causative pollutant(s). They are not sediment quality criteria and cannot be used as target concentrations for a TMDL.

In summary, the draft TMDL has not developed an adequate scientific basis for establishing TMDLs to address sediment toxicity.

No site-specific analysis is provided in the draft TMDL to support a site-specific correlation between sediment toxicity and the EPA and NOAA SQGs. Louisiana has no sediment quality criteria. In order to use LDEQ's narrative toxicity standard to address sediments, a site-specific cause and effect correlation between sediment pollutant concentrations and sediment toxicity must be determined before protective concentration targets can be established for a TMDL (i.e., a narrative standard translator). Because the SQLs are not sediment criteria and both EPA and NOAA explicitly caution against using them as such, the SQLs must not be used as TMDL targets unless such a correlation can be shown with site data. Moreover, this correlation should be pollutant-by-pollutant in order to have scientific integrity for the TMDL process.

Sasol North America, Inc. **Comment: 007/0016** **Response: 004/0078**

Because EPA has not developed an acceptable narrative standard translator for sediment toxicity, the proposed

TMDLs for sediment in the draft TMDL are not scientifically supported and should not be adopted. Instead, EPA should provide for a data collection program to conduct the necessary sediment toxicity identification evaluations (TIE) to determine the pollutants causing sediment toxicity and the appropriate pollutant concentration targets.

Sasol North America, Inc. **Comment: 007/0017** **Response: 007/0017**

Assuming zero loadings for anthropogenic pollutants in upstream flows and tributaries is appropriate.

The draft TMDL assumes that the background concentrations of anthropogenic pollutants is zero. Sasol agrees that this assumption is appropriate and it should be included in the final TMDL methodology. This assumption is also justified for the polynuclear aromatic hydrocarbons (PAH) which, although not strictly limited to anthropogenic sources, are not typically found in surface waters at significant concentrations when they originate from natural sources.

Sasol North America, Inc. **Comment: 007/0018** **Response: 004/0081**

It is technically incorrect to use non-point source loadings for aquatic life criteria that are evaluated at the 7Q10. There will be no surface runoff from rain events when the 7Q10 occurs; therefore there should be no non-point source loadings of pollutants under this flow condition. The draft TMDL uses a flow-based ratio method to estimate non-point source runoff contributions at critical low flow in the tributaries and estuary (draft TMDL, page 14). No technical analysis is provided to support that any surface runoff (i.e., non-point source flows) will occur coincident with the 7-day, 1-in-10-year low stream flows (7Q10). In fact, it is logical to assume that there will be no surface runoff during the critical low flow periods for this basin. The potential for surface runoff can be evaluated by reviewing the stream flow records in the watershed to determine when the 7Q10 flow has most recently occurred and then collecting and evaluating precipitation records for the same time period. It is probable that even if there is precipitation somewhere within the watershed during the period when the 7Q10 occurs, it will be very limited in both amount and spatial distribution and will not contribute non-point source loadings of significance. The TMDL should be recalculated assuming that there is no non-point source loading for all pollutants that have aquatic life criteria as targets, i.e., those waste load allocations that are based on the 7Q10. It is appropriate to use the annual average non-point source loading for annual loading estimates, where such loads are used for the TMDL.

Sasol North America, Inc. **Comment: 007/0019** **Response: 007/0019**

EPA used one atmospheric deposition station to estimate the potential mercury contribution by atmospheric sources. There are other EPA databases that should be consulted to determine the importance of this source of mercury. In the draft TMDL, EPA used a single atmospheric deposition station located within the Calcasieu Estuary watershed to estimate the contribution of atmospheric mercury to the surface water loading of this chemical. The estimated rate of mercury deposition used in the TMDL was 10.6 µg/m2 per year (draft TMDL, page 15). In the TMDL that EPA Region 4 performed on the Savannah River, it used the RELMAP model from EPA's 1997 Mercury Study Report to Congress to estimate wet and dry deposition rates for mercury. The estimated annual wet deposition rate for the entire Savannah River basin was 12.2 µg/m2 and the annual dry rate was 8.22 µg/m2 for a total deposition rate of 20.42 µg/m2. This is almost twice the rate used for the Calcasieu Estuary.

Sasol North America, Inc. **Comment: 007/0020** **Response: 007/0020**

If EPA has underestimated the atmospheric deposition rate for mercury, it may have overestimated the importance of the contribution of mercury by point sources to any measured fish tissue concentrations. In other locations, such as the Savannah River TMDL, atmospheric deposition is estimated to constitute well over 90% of the mercury that enters surface waters. In such cases, additional controls on point sources are ineffective at improving water quality and are extremely costly. EPA should reevaluate its estimates of atmospheric deposition in the Calcasieu Estuary watershed using all available and relevant databases.

Sasol North America, Inc. **Comment: 007/0021** **Response: 007/0021**

It appears that EPA has only estimated the contribution of atmospheric mercury deposition due to direct deposition on the surface of the waterbodies. If this is the case, it has significantly underestimated the mercury loading due to atmospheric deposition.

EPA has recently published its Mercury Maps study, which quantitatively links atmospheric deposition of mercury to fish tissue concentrations. This EPA study indicates that greater than 75% reduction in atmospheric deposition of mercury could be required in the Calcasieu Estuary in order to achieve acceptable fish tissue concentrations. The Mercury Maps study and the Savannah River TMDL both consider the atmospheric deposition of mercury on the

entire watershed, with subsequent discharge to the surface water during runoff events. This source of mercury is several orders of magnitude greater than the atmospheric deposition of mercury on the water surface. If EPA only estimated the deposition of mercury on the water surfaces of the Calcasieu Estuary, it has significantly underestimated the mercury loadings from this source.

Sasol North America, Inc. **Comment: 007/0022** **Response: 007/0022**

If EPA has underestimated the atmospheric deposition rate of mercury for the draft TMDL, it will overestimate the required reductions in effluent mercury from point sources. The result is that point sources are faced with possible mercury waste load allocations that may be both unachievable and unnecessary. If atmospheric deposition of mercury is the cause of impaired surface water quality, which EPA has indicated is likely to be true in the majority of watersheds in the country, then assigning very low effluent loadings of mercury to point sources will not eliminate the impairment but will place an undue burden on points sources that have little or no contribution to the impairment.

EPA should reevaluate its atmospheric mercury deposition estimates and should not establish numeric mercury allocations to point sources unless it demonstrates that they are causing and/or contributing to the impairment.

Sasol North America, Inc. **Comment: 007/0023** **Response: 007/0023**

There will be essentially no atmospheric deposition of the volatile organic pollutants reported in the toxics release inventory. Therefore, it is inappropriate to include the loadings for these pollutants in the non-point source loading terms. EPA used the toxics release inventory (TRI) data for facilities in the watershed to estimate the potential for organic chemicals to enter the watershed by atmospheric deposition (draft TMDL, page 14). These data are provided in Appendix B of the report. Ultimately, EPA did not use any of the TRI data for organic chemicals to calculate atmospheric deposition. This decision is appropriate because most of the reported compounds are gases at atmospheric temperature and pressure and will have a very low potential to enter surface water by wet or dry deposition.

Sasol North America, Inc. **Comment: 007/0024** **Response: 004/0085**

A hydrodynamic model should have been used to estimate flows and dispersion in the estuary. Because of tidal dispersion the water column-sediment interactions are very important in this estuary, and the failure to use a modeling approach that accounts for tidal dispersion and sediment transport is a fatal flaw in the TMDL.

EPA states that it evaluated the use of the WASP6 model to simulate pollutant transport and fate in the estuary and tributaries (draft TMDL, page 16). It abandoned this effort and selected the mass balance approach because:

“Although the WASP6 modeling system provides an excellent general tool to model the natural processes that determine the fate of various pollutants in the Calcasieu Estuary, data that can be used to estimate these processes in the Calcasieu Estuary are extremely limited. Because of these limitations, model results varied over a large range, depending on assumptions made about parameters for which there were no data. As a result, the use of the model as a quantitative tool to estimate allowable loads was not deemed appropriate.”

This is not a justifiable reason to abandon the scientifically supported approach needed for a TMDL of this importance and magnitude. Indeed, this statement indicates that because EPA was under a schedule set by Court Order, it abandoned the best available scientific tools to perform the TMDL in order to meet its schedule.

Sasol North America, Inc. **Comment: 007/0025** **Response: 004/0086**

TMDLs are routinely conducted by states and EPA using literature values for certain of the fate constants used in WASP6 and similar models. EPA has issued numerous guidance documents on selecting necessary coefficients for these models and performing sensitivity analyses of the results to better understand the reliability of model predictions. , Models can also be parameterized using sensitivity analysis and/or optimization approaches. As a worst case simplification, pollutants that are modeled could be considered as conservative (i.e., not subject to biodegradation, chemical reactions, biodegradation or volatilization) in a model that simulates the hydrodynamics of the system. Even a conservative pollutant simulation approach using an appropriate mass transport model would be preferable to a mass balance. The mass balance approach does not allow any analysis of the precision and accuracy of the TMDL results, which is a fundamental concept that EPA included in the 2000 TMDL regulation.

The transport and dispersion of pollutants in the Calcasieu Estuary is complex and must be considered in any TMDL analysis. The basic hydrodynamics of the system can be represented by a number of models, including WASP6, and only requires fresh water inflows, tidal data, and the bathymetry of the estuary and tributaries (including the ship

channel) to obtain realistic simulation. This information is readily available and should have been used to develop a model for determining pollutant transport in the tributaries and estuary (a previous water quality model developed by LDEQ for dissolved oxygen evaluations has sufficient hydraulic data to serve as a starting point).

EPA should redo the draft TMDL using an appropriate model to simulate the complex hydrodynamics of the Calcasieu Estuary. The hydrodynamic model should be calibrated and verified with tidal data and salinity data, both of which are available.

Once an acceptably calibrated hydrodynamic model is available, a water quality model using those hydrodynamics should be developed. The WASP6 model would be acceptable. Alternatively, other models could also be used if they represent the fate and transport processes that occur in the estuary. As a minimum, the water quality model should include chemical reactions, biodegradation, volatilization, and particulate attachment and sedimentation for organic chemicals and particulate partitioning and sedimentation for metals. It must also include sediment resuspension and transport, for reasons discussed later in these comments. The water quality model should be calibrated to the extent practical with available data. Where insufficient data are available, then sensitivity analyses should be performed to determine the uncertainty in the model predictions. All of this information is justified for a TMDL that is as complex and has as much potential impact on dischargers as this one does.

Sasol North America, Inc. **Comment: 007/0026** **Response: 004/0089**

EPA's statement that tidal dispersion at low flows is unimportant and can be ignored is not accurate for the main channel of the estuary.

PA states in the draft TMDL report that tidal dispersion is not important at low (critical) stream flows (draft TMDL, page 18). Also, EPA states that no estimates of tidal dispersion are available to use in a model. Both of these statements are inaccurate. Failure to account for tidal dispersion (which LDEQ considers in NPDES permitting actions) results in over-conservative estimates for discharges to the estuary and is another major technical flaw in the TMDL evaluation. As stated in the previous comment, it is not true that a hydrodynamic model is impractical. Tidal records, salinity, bathymetry, and major inflow are all available and because basic hydraulics of estuarine systems can be reliably simulated with such models, they should be used to predict the effects of tidal dispersion.

Sasol North America, Inc. **Comment: 007/0027** **Response: 004/0091**

The TMDL incorrectly excludes partitioning of organic chemicals and metals to particulates and subsequent sedimentation and potential resuspension.

EPA states that it did not include partitioning of organic chemicals and metals to particulates and subsequent sedimentation because: (1) it has no estimates of particle density and sedimentation rates; and (2) if metals and organic chemicals in particulates accumulate in contaminated sediments they will contribute to an existing impairment (draft TMDL, page 18). Both of these arguments for not dealing with this fate mechanism are unjustified.

With respect to sedimentation rates, there are ample data in the technical literature that can be used to estimate such rates in tidally-affected surface waters. As discussed earlier, default rates for variables such as sedimentation of particulates can be used in a model and sensitivity analyses can be used to establish acceptable estimates for prediction of water column pollutant concentrations. The particulates settling from the water column will not necessarily cause or contribute to elevated pollutant concentrations in the sediment. In fact, once effluent quality improves (which is probably already the case), the particulates settling from the water column may dilute the pollutant concentrations in the sediment. A simple calculation will show that if a point source is achieving a water quality-based effluent limit (WQBEL) for a pollutant such as a metal, the concentration of the metal in any particulates that are discharged will typically be well below the elevated sediment concentrations reported in some segments of the Calcasieu Estuary. However, such an analysis to determine if pollutant chemicals attached to particulates actually could cause or contribute to sediment contamination was never done by EPA.

A very important issue with respect to sediment-water column interaction and the fate of organic chemicals and metals in the Calcasieu Estuary is not evaluated by EPA (other than mentioning it) in the TMDL. Most if not all of the sediment contamination in the estuary and its tributaries is likely to be a legacy issue, from past discharges that were not treated as effectively as they are today. The existing discharges may not contribute to the existing sediment contamination and may actually be diluting sediment contaminant concentrations if they are having any effect at all. However, EPA did not evaluate any fate or transport mechanisms with respect to sediment contamination so there is no information or evaluation to determine if existing discharges are contributing to sediment pollutant concentrations. The absence of any scientific analysis of the cause and effect relationship between discharges and

sediment contaminants results in a scientifically flawed TMDL.

Sasol North America, Inc. **Comment: 007/0028** **Response: 004/0067**

The method used in the draft TMDL to calculate waste load allocations for sediment contaminants (PAHs, pesticides, etc.) has no scientific basis because it does not relate pollutant loads in the water column to concentrations in the sediment.

EPA assumes in the draft TMDL that if the water quality criteria for organic chemicals and metals are achieved, the sediment targets will also be achieved. This assumption has no scientific foundation and is not supported by any technical analysis in the draft TMDL report. If the sediment concentrations are due to historic discharges (before current treatment was installed), then there is no correlation between the current point source discharges and the sediment pollutant concentrations. As described in the preceding comment, EPA must evaluate and determine the cause and effect between organic chemical and metal concentrations in point and non-point discharges, the water column, and sediments before it can perform the TMDL for sediments. It has not done this so the draft TMDL is fatally flawed with respect to the evaluation of sediments.

Sasol North America, Inc. **Comment: 007/0029** **Response: 004/0083**

Margins of safety for TMDLs should be based on estimates of the uncertainty of the estimated waste load and load allocations. EPA has done no analysis that justifies its MOS of 20%.

The draft TMDL uses an arbitrarily specified margin of safety (MOS) of 20% (draft TMDL, page 20). EPA has stated in the TMDL regulation that the MOS should be based on the estimated uncertainty in the TMDL predictions. While this regulation is not yet effective, this recommendation is both scientifically sound and good public policy. EPA should base the MOS on an uncertainty analysis of the TMDLs.

Sasol North America, Inc. **Comment: 007/0030** **Response: 004/0102**

EPA must perform uncertainty analyses of its TMDLs in order to demonstrate the reliability and reasonableness of the waste load allocations.

The draft TMDL assumes that all of the impairments identified in the Calcasieu Estuary can be eliminated by control of point sources. The draft TMDL prepared by EPA makes no attempt to estimate the uncertainty in the proposed waste load allocations and load allocations. Estimates of uncertainty are essential to allow the regulated community and the general public to understand how effective the proposed TMDLs will be in achieving the water quality objectives.

If an appropriate uncertainty analysis is conducted, it will allow identification of those portions of the TMDL that require more data collection and analysis to result in waste load allocations and load allocations that will eliminate the impairments, but will not be so overly conservative that they cause excessive economic and social impacts.

Sasol North America, Inc. **Comment: 007/0031** **Response: 004/0014**

LDEQ's chronic criterion for mercury is not a water quality standard, but rather is a screening level based on tissue residues. It is not appropriate to use the LDEQ screening level as though it is a chronic aquatic life criterion that must be achieved at the critical low flow.

The draft TMDL uses the Louisiana surface water chronic aquatic life criterion as the target for mercury TMDLs (draft TMDL, Appendix A). This mercury criterion is actually a screening level and if it is exceeded in the water column, the standards require that fish tissue samples be analyzed for methyl mercury and compared to the Food and Drug Administration tissue action level of 1 mg/kg (footnote 11 to Table 1, LAC 33:IX.1113). The standards specify that if fish tissues concentrations of methyl mercury exceed the FDA action level, LDEQ must initiate the necessary studies to establish a protective site-specific water quality criterion for mercury.

Because the LDEQ mercury criterion is not a water quality standard, but rather is a trigger to determine when a water quality criterion is required for a specific site, it cannot be used as a TMDL target. Moreover, because it is based on bioaccumulation (i.e., tissue concentrations), it should not be applied as though it were an aquatic life criterion that must be achieved at critical low flow (7Q10). It is actually a human health criterion (it relates to the FDA action level of methyl mercury) and thus any derived mercury water quality criterion and TMDL target should be applied at the harmonic mean flow, which is used as the exposure basis for bioaccumulative pollutants.

The TMDLs for mercury in all subsegments of the Calcasieu Estuary are inconsistent with regulatory requirements because they are not based on a numeric water quality criterion that has been developed as required by LAC 33:1113, Table 1, footnote 11. EPA must develop a site-specific mercury criterion using the methodology prescribed

in the Louisiana water quality standards to use as a TMDL target, and should apply this site-specific criterion as a long-term average (i.e., using the harmonic mean flow).

Sasol North America, Inc. **Comment: 007/0032** **Response: 003/0004**

The TMDL should indicate that site-specific aquatic life water quality criteria for copper, lead, nickel, and zinc may be appropriate for the Calcasieu Estuary. If such site-specific criteria are appropriate, the TMDL should be revised.

Several states have identified reassessment of their water quality criteria using site-specific conditions as one of the first steps in their TMDL procedures. The reason for this is that aquatic life criteria that are based on EPA's national criteria are often overprotective when site-specific bioavailability of a pollutant is considered. This is especially true for metals. For example, in August 2000, Texas adopted site-specific aquatic life criteria for the Houston Ship Channel, side bays and tributaries, and San Jacinto Bay, which are estuarine systems with hydraulic and biological characteristics that are similar to the Calcasieu Estuary. The revised copper criteria, which are based on the EPA's water effects ratio (WER) method for developing site-specific criteria, are greater than the statewide estuarine copper criteria that are based on the EPA national criteria by a factor ranging from 1.9-2.3. EPA Region 6 approved these site-specific copper criteria on February 27, 2002.

It is probable that the existing Louisiana statewide criteria for copper, lead, nickel and zinc in estuarine waters are also overprotective. The draft TMDL should provide for development of site-specific aquatic life criteria for these metals and adjustment of waste load allocations if such criteria are greater than the statewide criteria.

Sasol North America, Inc. **Comment: 007/0033** **Response: 002/0012**

The draft TMDL incorrectly locates the Sasol and Conoco treated process water discharges.

Both Sasol and the Conoco refinery historically discharged treated process effluent and storm water to Bayou Verdine. However, in the early 1990's both companies made plans and constructed outfall lines and high-rate diffusers that discharge to the Upper Calcasieu Estuary (subsegment 030301), just upstream of the Clooney Island Loop. These discharge locations have been approved by both the LDEQ and EPA Region 6. Because of delays in issuing a final NPDES permit, Sasol's discharge to the Calcasieu Estuary will not begin until May or June 2002. Conoco's discharge to the estuary began earlier. The draft TMDL evaluates both of these treated discharges as though they are still to Bayou Verdine (draft TMDL, page 24). The TMDL must be revised to relocate these discharges to subsegment 030301 and delete them from Bayou Verdine.

Sasol North America, Inc. **Comment: 007/0034** **Response: 004/0062**

EPA's identification of pollutants of concern (POC) for Bayou Verdine based on sediment quality targets is not technically justified and is not lawful.

Thirteen of eighteen of the POC identified for Bayou Verdine are based on EPA and NOAA SQGs (draft TMDL, Table 5). As discussed previously in these comments, these SQGs are not sediment quality criteria and have no legal status as Louisiana water quality criteria. Furthermore, EPA has not shown that any of the SQGs are scientifically appropriate translators of LDEQ's narrative toxicity standard. Therefore, TMDLs should not be developed for any of the 13 pollutants listed in Table 5 for Bayou Verdine sediment toxicity until scientifically based site-specific sediment concentration targets are developed.

Sasol North America, Inc. **Comment: 007/0035** **Response: 004/0106**

The draft TMDL proposes wasteload allocations for certain pollutants that are lower than the applicable surface water criterion. This result conflicts with the NPDES regulations, because a discharge that is at a water quality criterion concentration cannot cause or contribute to an exceedance of that criterion.

EPA applies its arbitrary MOS of 20% to each TMDL that it calculates, which results in waste load allocations for Sasol and Conoco that are lower than the limits that are calculated with the applicable water quality criteria for zinc, mercury, and nickel. For example, EPA states that the zinc limit for Sasol that is calculated by applying the water quality criterion as an end of pipe limit (no mixing zone) is 1.95 lb/day (draft TMDL, page 31). The proposed zinc TMDL for Sasol is 1.6 lb/day (draft TMDL, Table 15). Thus, because of the 20% MOS applied by EPA, the allowable TMDL for Sasol is approximately 20% lower than the water quality criterion.

Sasol believes that the proposed waste load allocation for zinc, and for mercury and nickel, are not consistent with EPA's NPDES regulations for water quality-based effluent limits (40 CFR 122.44(d)) because if the effluent concentrations are equal to the water quality criterion for a pollutant, the discharge cannot cause or contribute to an exceedance of the criterion because it cannot increase the ambient concentration above the criterion. A waste load

allocation that is set below the applicable criterion is inconsistent with EPA permitting regulations and is not scientifically justified. These TMDLs must be revised to set the waste load allocations at concentrations no lower than the applicable water quality criteria.

Sasol North America, Inc. **Comment: 007/0036** **Response: 004/0107**

The analysis for calcium limits in Bayou Verdine has no scientific foundation and, in fact, no site-specific data were used to generate the waste load allocation.

The TMDL establishes proposed waste load allocations for calcium, based on the assumption that calcium is causing sediment toxicity (draft TMDL, pages 31-32). This assumption is based on an inconclusive TIE performed by EPA's contractor. The draft TMDL indicates that the TIE didn't reduce toxicity of the sediments significantly using a range of treatment, and states that these results "suggest" an ion imbalance due to calcium is the cause of toxicity. A TMDL should not be based on a "suggestion" of the cause of toxicity.

Sasol North America, Inc. **Comment: 007/0037** **Response: 004/0108**

Once calcium was identified as the "suggested" target pollutant, the "criterion" was derived from water column data taken from the 1999-2000 EPA Superfund monitoring program (draft TMDL, page 32). This value is incorrectly listed in Appendix A of the TMDL as a chronic water quality criterion. It has not been officially adopted by LDEQ as such. There are two fundamental problems with EPA's selection of a calcium target for the TMDL: (1) there is no technical analysis to demonstrate that calcium in the water column has any correlation to calcium in the sediments; and (2) the calcium data used by EPA was taken from the entire surface water database for the Calcasieu Estuary TMDL and thus has no demonstrated relevance to the site-specific conditions in Bayou Verdine. In fact, there are no calcium data for Bayou Verdine in the EPA database. All of the data are taken from other areas of the estuary and are thus of questionable validity for projecting protective concentrations for the sediments in Bayou Verdine.

The TMDL for calcium in Bayou Verdine is based on a series of assumptions, none of which are supported by any scientific analysis. This TMDL should be deleted from the final TMDL. It should be replaced by a sediment TIE program that when properly designed and executed, will identify the pollutant or pollutants that are causing the toxicity. EPA requires meeting this objective when an individual discharger performs a TIE — no less should be required of EPA before a TMDL is developed.

Sasol North America, Inc. **Comment: 007/0038** **Response: 002/0012**

The Sasol and Conoco refinery dischargers should be added to the list of point sources for the Upper Calcasieu Estuary and Ship Channel subsegment.

As indicated earlier in these comments, the discharge from Sasol's Outfall 001 should be relocated from Bayou Verdine to the Upper Calcasieu Estuary and Ship Channel. The high-rate diffuser is located on the north side of the estuary at a distance of approximately 2000 feet upstream of the Clooney Island Loop. The Conoco diffuser is located 250 m downstream of the Sasol diffuser.

W.R. Grace & Co. **Comment: 008/0001** **Response: 008/0001**

W. R. Grace & Co. agrees with the recommended delisting of ammonia as causing any toxic impairment to segment 030301 of the Calcasieu Estuary, where the W. R. Grace & Co. plant discharges. Ammonia has always been a monitored parameter of the plant water permit and is reported on the monthly Discharge Monitoring Report (DMR). Ammonia is a raw material for the plant, being used in almost all the units.

W.R. Grace & Co. **Comment: 008/0002** **Response: 008/0002**

Copper, mercury, benzo(a)anthracene and benzo(a)pyrene are not used directly in any of the plant processes. Also, these compounds are not known to be in any of the raw materials or ancillary chemicals used in the plant processes. The last effluent priority pollutant scan (see attached) showed the concentrations for these four chemicals to be below the Minimum Quantification Level (MQL) for each test, which supports the fact that these chemicals are not used in the plant processes. Therefore, W. R. Grace & Co. believes these four chemicals are not discharged by the plant, and a wasteload allocation for them is not warranted.

Therefore, based on plant operations and effluent test data, W. R. Grace & Co. respectfully requests that the W. R. Grace & Co. name be removed from each list of plants receiving wasteload allocations for copper, mercury, benzo(a)anthracene and benzo(a)pyrene. The final TMDL for toxics in the Calcasieu Estuary would show our draft wasteload allocation going to the remaining plants on the list.

Citgo Petroleum Corporation **Comment: 009/0001** **Response: 004/0002**

The State of Louisiana has primacy in determining whether to add waters to the state's 303(d) list, and the state should be given the opportunity to review any data relied upon by EPA to determine (i) whether the 303(d) list should be amended to include the above pollutants or (ii) whether the data show that no impairment due to these pollutants exists. By reproposing TMDLs for pollutants not on the state's 303(d) list, EPA has impermissibly usurped state authority. See, Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d),

Citgo Petroleum Corporation **Comment: 009/0002** **Response: 004/0003**

LCA further submits that to the extent EPA desires to establish TMDLs for pollutants not included on the current 303(d) list, EPA should first establish a revised 303(d) list pursuant to the authorities referenced in the previous paragraph. EPA should not unilaterally establish TMDLs for water quality limited segments absent first revising the 303(d) list to add the pollutants of concern.

Citgo Petroleum Corporation **Comment: 009/0003** **Response: 004/0001**

Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d), allows the state (or EPA in the case where the state has failed to act) to establish TMDLs only where technology based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters. In short, TMDLs are authorized only where the state water quality standards are not being met because technology based controls are insufficient. EPA is simply not authorized to establish a TMDL for a pollutant where there is no evidence of impairment. There is no evidence of impairment for a great number of pollutants for which EPA has proposed TMDLs for the Calcasieu Estuary.

Citgo Petroleum Corporation **Comment: 009/0004** **Response: 004/0005**

Where EPA's investigation of a pollutant shows that the state water quality standard for that pollutant is not being exceeded, then EPA must delist that waterbody for that pollutant on the 303(d) list. Indeed, EPA clearly has proposed to delist 20 waterbody/pollutant combinations in the Calcasieu Estuary and Ouachita River Basin for exactly that reason. See, 67ed. Reg. 15176, March 29, 2002.

Citgo Petroleum Corporation **Comment: 009/0005** **Response: 004/0002**

As the above pollutants were not on the 303(d) list, EPA was not required by law to develop TMDLs for such pollutants. See, 40 C.F.R 130.7(c) and (d). For EPA to develop TMDLs for pollutants not on the current 303(d) list, as here, is arbitrary, capricious, and legally impermissible under the Clean Water Act and regulations promulgated thereunder, as referenced above.

Citgo Petroleum Corporation **Comment: 009/0006** **Response: 004/0007**

EPA has proposed TMDLs for several of the pollutants based on the fact that the detection limit for such pollutants is lower than the relevant water quality standard. This is an inappropriate interpretation of the Clean Water Act. TMDLs are warranted only when there is evidence that a discharge has a reasonable potential to contribute to exceedance of a standard. It is not appropriate for EPA to adopt a TMDL simply because it presumes that substances do exist in the water and presumes further that these will be at levels above the standards. EPA cannot presume impairment without scientific basis. EPA should withdraw TMDLs where there is no detection of such pollutants using reliable data (such as clean and ultra-clean data where warranted). EPA should rely instead on 40 CFR 122.44(d)(1)(i) and (vi)(A) and (B) which require the permitting authority to impose water quality based effluent limits where the discharges from and individual facility have "reasonable potential" to exceed a state water quality standard. Under these rules, if the permitting authority has reason to believe that a pollutant will contribute to an exceedance of the standard, a site-specific limit may be set. This existing rule is fully protective of water quality without the existence of a TMDL.

Citgo Petroleum Corporation **Comment: 009/0007** **Response: 004/0008**

Although LDEQ indicated that HCB, HCBD and PCBs should remain on the 303(d)list, this recommendation was solely due to the existence of a fish consumption advisory from the Louisiana Department of Health and Hospitals. There is no current evidence of impairment of Bayou d'Inde for these parameters even though the Department of Health and Hospitals is protectively continuing the advisory. In fact, water sampling has not detected HCB or HCBD for over 4 years.

Citgo Petroleum Corporation **Comment: 009/0008** **Response: 004/0009**

Further, PCBs are banned from manufacture and most uses under the federal Toxic Substances Control Act, so such

regulations provide reasonable assurance that this pollutant will not be an ongoing issue. TMDLs, which address ongoing discharges, are simply unwarranted as they have no impact on water quality.

Citgo Petroleum Corporation **Comment: 009/0009** **Response: 004/0010**

EPA proposed TMDLs for metals without performing data gathering using clean techniques. This is an invalid scientific approach when EPA is clearly aware that use of data gathered using clean techniques would likely demonstrate that no impairment exists.

Citgo Petroleum Corporation **Comment: 009/0010** **Response: 002/0003**

On August 20, 2001, LDEQ provided "clean techniques" sampling data to EPA demonstrating that there were no exceedances of the aquatic copper criteria in Bayou D'Inde, Bayou Verdine, and the Calcasieu Ship Channel. (The original of this submittal is in EPA Region 6's files. LCA requests that EPA include the original submittal, or a copy thereof, in the official administrative record for this TMDL proceeding.) However, EPA's contractor apparently did not receive or did not consider this data for these waterbodies although similar data was used as a basis for delisting copper in other waterbodies. The data provided by LDEQ to EPA in August 2001 was developed from a report commissioned by PPG titled "A Final Report for Trace Metals "Clean Technique" Sampling and Laboratory Analysis, CK Associates, Inc., March 2001."

Citgo Petroleum Corporation **Comment: 009/0011** **Response: 004/0012**

EPA proposed TMDLs/WLAs for copper, mercury and nickel were based upon data collected and analyzed without use of "clean techniques." As noted above, data collected using clean techniques was already been provided to EPA by LDEQ in August 2001, but apparently was not considered in the study. This data showed that there is no exceedance of the aquatic copper criteria and that Bayou d'Inde should thus be delisted for copper. The "dirty" data used by the EPA contractor showed nickel detected above the criteria in less than 10% of the samples. In light of this data , Louisiana Water Quality Standards ("LWQS") indicate that clean techniques or ultra-clean techniques must be used when other data indicate that a criteria may be exceeded. LAC 33:IX.1113.C.6.f provides: The use of clean or ultra-clean techniques may be required to definitively assess ambient levels of some pollutants (e.g., EPA method 1669 for metals) or to assess such pollutants when numeric or narrative water quality standards are not being attained. Clean and ultra-clean techniques are defined in LAC33:IX.1105. The relevant definitions of "clean" and "ultra-clean" in LAC33:IX.1105 provide: Clean Techniques—those requirements (or practices for sample collection and handling) necessary to produce reliable analytical data in the microgram per liter (µg/L) or part per billion (ppb) range. Ultra-Clean Techniques—those requirements or practices necessary to produce reliable analytical data in the nanogram per liter (ng/L) or part per trillion (ppt) range.

Citgo Petroleum Corporation **Comment: 009/0012** **Response: 002/0003**

The aquatic criteria for copper and nickel are in the part per billion range while the aquatic criteria for mercury are in the part per trillion range. Thus, the data used by the EPA contractor to form the basis for the TMDLs for these pollutants are simply not considered to be reliable data to establish standards in these part per billion and part per trillion ranges. EPA's contractor should have collected additional data for these parameters using clean or ultra-clean techniques as specified by the LWQS because such data is "necessary to produce reliable analytical data" in the ranges established by the standards and the TMDLs. The failure to do so is inexplicable given that only clean or ultra-clean techniques data is considered by the scientific community (and the LWQS) to be the type of data that will support an actual wasteload allocation and the attendant economic burdens that will be imposed on discharging

Citgo Petroleum Corporation **Comment: 009/0013** **Response: 004/0014**

With respect to mercury, EPA did not use ultra-clean techniques. Further, while EPA apparently detected mercury in the ambient water, it has not yet identified any exceedance of the chronic aquatic protection standard because it did not perform any fish testing. LDEQ's aquatic protection criteria requires fish testing for implementation. LAC 33:IX.1113 Table 3 note 11. EPA data developed in Phase II of the Calcasieu Estuary Superfund Study support LCA's conclusion that there is no exceedance of the aquatic protection criteria. Thus, the TMDL for mercury should be withdrawn.

Citgo Petroleum Corporation **Comment: 009/0014** **Response: 002/0002**

EPA failed to use the correct flows for waterbodies that are tidally influenced. If a waterbody is tidally influenced, EPA must use the average or typical flow averaged over one tidal cycle irrespective of flow direction for dilution calculations. See, LAC 33:IX.1115, Table 2b. (For example, EPA did not use the average tidal flow for evaluation

of human health criteria in Bayou D'Inde, even though Bayou D'Inde is tidally influenced.)

Citgo Petroleum Corporation **Comment: 009/0015** **Response: 004/0016**

The treatment of discharge data grossly over-estimated loadings in many cases by ignoring non-detected values in facilities' discharge monitoring reports and/or presuming that pollutants were present when "zero" values were reported for pollutant concentrations below the analyte method detection limit.

Citgo Petroleum Corporation **Comment: 009/0016** **Response: 004/0017**

EPA misused data from the LDEQ Ambient Water Quality Network. All "non-detects" ("ND"s) were ignored. In several instances, the majority of data entries were ND. Water quality criteria were compared to the mean of detects, only.

EPA misused data from the National Oceanic and Atmospheric Administration's Calcasieu database. All NDs were ignored. In several instances, the majority of data entries were ND. Water quality criteria were compared to the mean of detects, only.

Citgo Petroleum Corporation **Comment: 009/0018** **Response: 004/0019**

EPA may have inappropriately determined point source loadings. It is unclear whether EPA used permit limits or average reported monthly and maximum daily loads for each outfall and then summed the results by pollutant across each outfall. EPA states says both in the Executive Summary of the Draft Total Maximum Daily Load for Toxics for the Calcasieu Estuary (the "Draft TMDL Document"), p. ES2.

Citgo Petroleum Corporation **Comment: 009/0019** **Response: 004/0020**

Further, nothing in the Draft TMDL Document indicates which years of facility data were reviewed and why that time period was deemed sufficiently representative of normal, authorized plant operations.

Citgo Petroleum Corporation **Comment: 009/0020** **Response: 004/0021**

EPA may have inappropriately determined nonpoint source contributions and failed to consider reductions in nonpoint source loadings.

Citgo Petroleum Corporation **Comment: 009/0021** **Response: 004/0022**

The TMDL mass balance methodology used by EPA is overly simplistic, particularly for a system as hydraulically complex as the Calcasieu Estuary. Such complexity requires fate and transport modeling to generate scientifically acceptable TMDLs. This modeling should include hydrodynamics and water column/sediment pollutant interactions. EPA used a mass balance approach to model toxic pollutants in the Calcasieu Estuary system. The mass balance approach is most problematic for simulating compliance with water quality criteria that have a short-term exposure basis, e.g., acute and chronic aquatic life criteria. A mass balance across an entire surface water subsegment that is miles in length and contains islands and looping channels (e.g., the Upper Calcasieu Estuary and Ship Channel) is inadequate for demonstrating compliance with water quality criteria. The mass balance analysis is especially problematic for aquatic life criteria because temporal-spatial concentration differences must be properly simulated to assure that wasteload allocations are protective, but not overly so. The water quality criteria and implementation methods of the LDEQ are designed to assure that the standards are met at all places in the waterbody, but the TMDL approach used by EPA fails to accomplish this objective.

Citgo Petroleum Corporation **Comment: 009/0022** **Response: 004/0023**

The hydrodynamics of a surface waterbody determine the transport of chemicals and particulates. As described in the Draft TMDL Document, the Calcasieu Estuary, with its ship channel, islands, lakes, and tributary bayous has very complex hydraulics and pollutant transport. Rather than justifying the simplifying assumption of a mass balance, this complexity demands development of a hydrodynamic model that can adequately simulate the movement of water and transport of pollutants. The foundation of a TMDL is the ability to satisfactorily simulate the hydraulics of the surface waterbody of concern. This has not been done for the Proposed TMDLs.

Citgo Petroleum Corporation **Comment: 009/0023** **Response: 004/0024**

Another major deficiency of the TMDLs performed by EPA is the failure of the mass balance to account for pollutant fate including both water column-sediment interactions, partitioning of pollutants to solids, and processes such as biodegradation and volatilization. These processes are not considered in the Draft TMDL Document, but are necessary in order to develop technically supported wasteload allocations.

Citgo Petroleum Corporation **Comment: 009/0024** **Response: 004/0025**

EPA needs to correct errors in the segment flow.

Citgo Petroleum Corporation **Comment: 009/0026** **Response: 004/0026**

EPA needs to correct errors in facility outfall flow.

Citgo Petroleum Corporation **Comment: 009/0027** **Response: 004/0027**

EPA needs to substitute statistically valid estimates of facility flows for all stormwater driven TMDL mass balance calculations. EPA's method for estimating facility maximum discharge (for use with chronic toxicity pollutant of concern ("POC") TMDLs) is arbitrary and does not reflect reasonable, statistically-based estimates. Maximum flows are associated with stormwater discharges. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate facility flow estimates for stormwater events.

Citgo Petroleum Corporation **Comment: 009/0028** **Response: 002/0013**

In the Draft TMDL Document, EPA has failed to account for the fact that CITGO's outfalls for the CitCon portion of its operations (Outfalls 001, 002, 012) are Bayou D'Inde (Segment 030901). Thus, EPA has erroneously failed to provide wasteload allocations to CITGO with respect to such discharges.

Citgo Petroleum Corporation **Comment: 009/0029** **Response: 009/0029**

In the Draft TMDL Document, EPA has used incorrect estimates of mean flow for CITGO's point source discharge outfalls. The TMDL Draft Document reflects the following flows for CITGO into the Upper Calcasieu Estuary and Ship Channel (030301): average, 11.30 MGD; max 15.00 MGD. The correct flows for such discharge are: average 50.12 MGD; max, 62.60 MGD. Thus, the flow data used by EPA is off by a factor of 5. This flow information was obtained from CITGO's DMR's for the year 2001.

Citgo Petroleum Corporation **Comment: 009/0030** **Response: 004/0030**

The TMDL Draft Document reflects the following flows for CITGO into Bayou D'Inde (030901): average, 0.0 MGD; max, 0.0 MGD. The correct flows for such discharge are: average, 5.13 MGD; max 9.24 MGD. Thus, the flow data used by EPA is clearly incorrect.

Citgo Petroleum Corporation **Comment: 009/0031** **Response: 009/0031**

EPA's information on the location of several other major point-source discharge outfalls contain numerous significant errors. These errors include:

Conoco--Primary outfalls have been moved to the Calcasieu Ship Channel (Segment 030301).

Condea Vista--Permit being finalized to move primary outfalls to the Calcasieu Ship Channel (Segment 030301).

Lyondell--Stormwater Outfalls 025, 026, and 032 to Bayou Verdine (Segment 030306) were not included.

PPG--Outfall 002 to Calcasieu Ship Channel (Segment 030301) was not included.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary outfalls to ensure that they are located on the proper segment.

Citgo Petroleum Corporation **Comment: 009/0032** **Response: 004/0026**

EPA's estimates of mean flow for most major point-source discharge outfalls contain numerous significant errors. These errors include:

Lyondell Calcasieu Ship Channel (Segment 030301) discharge--off by a factor of 4

PPG Bayou D'Inde (Segment 030901) discharge--off by a factor of 10.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of mean flows for each segment.

Citgo Petroleum Corporation **Comment: 009/0033** **Response: 004/0030**

EPA's estimates of average maximum flow for most major point-source discharge outfalls contain numerous significant errors. EPA's estimates of maximum flow contain similar errors. Since these errors reflect only a partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary

dischargers to ensure that they are developing appropriate estimates of maximum flows for each segment.

Citgo Petroleum Corporation **Comment: 009/0034** **Response: 004/0031**

EPA should determine discharge maximum flows for use in chronic toxicity TDMLs using a statistically valid approach. EPA's estimate of average monthly maximum discharge flow is arbitrary. A statistically valid representation of maximum flow for an appropriate return period should be determined. This is particularly important since a significant portion of some facilities' loads may be associated with stormwater discharges.

Citgo Petroleum Corporation **Comment: 009/0035** **Response: 002/0001**

Pollutants of Concern ("POCs"). In the Draft TMDL Document, EPA uses pollutant targets based on its POC list.

Pollutants on the POC list that have no numeric criteria in Table 1 of LAC33:IX.1131 have no legal status for a TMDL and should not be used as targets. Where a narrative standard is the basis for identification of a designated use impairment (i.e., inclusion of a pollutant on the 303(d) list), then EPA has the obligation to develop a scientifically-supported, site-specific numeric water quality criterion for each and all pollutants that can be correlated to the impairment. It is unacceptable to use pollutant concentrations presented in guidance as TMDL targets, because these are not water quality standards and they have not been demonstrated to be the cause of toxicity at any specific location.

Citgo Petroleum Corporation **Comment: 009/0036** **Response: 004/0033**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" copper. LDEQ (in a letter to EPA dated August 20, 2001) provided information for delisting of copper from the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901).

Citgo Petroleum Corporation **Comment: 009/0037** **Response: 004/0034**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" several court-ordered "categorical" impairments.

LDEQ (in a letter to EPA dated October 10, 2001) provided information clarifying the listings of "priority organics" and "non-priority organics" for the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901), and other segments. Based on this information LDEQ stated that the only POCs which are the suspected cause of waterbody impairment are: Hexachlorobenzene, Hexachlorobutadiene, and PCBs for Bayou D'Inde (only). LDEQ stated that no other use impairments for organic POCs have been documented. DEQ (in the same letter to EPA dated October 10, 2001) provided information clarifying the listings of "other inorganics" for Bayou D'Inde (030901). LDEQ stated that this listing was for general information purposes and not a listing for a specific parameter.

Citgo Petroleum Corporation **Comment: 009/0038** **Response: 004/0035**

Notwithstanding the above, EPA has sought to select POCs for these "categorical" impairments by evaluating information from several studies of the Calcasieu Estuary area which were not designed to support TMDL determinations. In the Draft TMDL Document, EPA states that data from the following seven reports were reviewed and evaluated to identify POCs:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou D'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996.

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of the Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

In each case, these reports were the result of limited water and sediment quality investigations that were intended to focus on specific legacy contamination issues. These studies have a number of limitations which render them unsuitable for use in identifying TMDL POCs:

Citgo Petroleum Corporation **Comment: 009/0039** **Response: 004/0035**

The sampling schemes--locations, depths, compositing, etc.--of these studies were primarily designed to evaluate known or suspected areas of contamination (i.e., "hot spots") within segments. The studies were not designed to provide, and do not provide, a statistically representative set of data for the respective segments. Absent a statistically valid sampling scheme (e.g., random sampling or grid sampling), the findings of POCs above reference levels is only indicative of localized contamination in the specific areas of investigation.

Citgo Petroleum Corporation **Comment: 009/0040** **Response: 004/0037**

EPA should eliminate selection of POCs solely based on localized "hot spot" sediment data:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Citgo Petroleum Corporation **Comment: 009/0041** **Response: 004/0038**

The LDEQ information referred to under Comment 7.c. above--combined with the absence of data showing presence in segment water or sediment above reference levels--should be sufficient grounds to delist the following POCs:

Phenol, Bayou Verdine (030306)

Bromoform, Bayou D'Inde (030901)

1,1, 2, 2 Tetrachloroethane, Bayou D'Inde (030901)

Citgo Petroleum Corporation **Comment: 009/0042** **Response: 002/0003**

Water and sediment quality data in the studies relied upon by EPA were not developed using consistent data quality objectives appropriate for a TMDL process. The reference levels for POCs requires very low detection limits. There is no indication that the above studies used appropriate field and laboratory techniques necessary to assure the quality of these results, particularly a reasonable minimization of false positives at the reference level.

Citgo Petroleum Corporation **Comment: 009/0043** **Response: 004/0040**

In the Draft TMDL Document, EPA does not address whether the above studies relied upon by EPA found the POCs under conditions consistent with application of the reference level--such as those relevant to POC fate, mobility, chemical form/stability, bioavailability, and biotoxicity.

Citgo Petroleum Corporation **Comment: 009/0044** **Response: 004/0041**

Water quality references levels are for dissolved concentrations and EPA should be evaluating only results for dissolved concentrations of POCs.

Citgo Petroleum Corporation **Comment: 009/0045** **Response: 004/0042**

Reference levels for marine conditions should be applied to marine waters and reference levels for fresh water should be applied to samples from fresh water conditions.

Citgo Petroleum Corporation **Comment: 009/0046** **Response: 004/0043**

Reference levels for fresh water must be adjusted for hardness.

Citgo Petroleum Corporation **Comment: 009/0047** **Response: 003/0004**

Other factors affecting the application of water quality reference levels should be considered (e.g. using techniques similar to a water effects ratio study.)

Citgo Petroleum Corporation **Comment: 009/0048** **Response: 004/0045**

Reference levels that are not appropriate to local biota should not be used.

Citgo Petroleum Corporation **Comment: 009/0049** **Response: 004/0046**

Sediment reference levels should be adjusted based on sediment mineral type, soil type, AVS/SEM ratio, and other

relevant characteristics.

Citgo Petroleum Corporation **Comment: 009/0050** **Response: 004/0047**

Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Citgo Petroleum Corporation **Comment: 009/0051** **Response: 004/0050**

Other Inorganics - Bayou d'Inde (030901) was listed on the 303(d) list for "other inorganics". LDEQ discussed the meaning of this term as follows:

Other Inorganics

Subsegment 030901 – Bayou D'Inde – Headwaters to Calcasieu River

The term "other inorganics" was intended as a generic term for those non-metallic inorganic compounds that may occur in the water from brine discharges during oil and gas activities. No water quality sample was collected; therefore, no quantitative assessment was made. Non-metallic inorganic water quality parameters in brine discharges include chlorides, sulfates, total dissolved solids and salinity.

Since Bayou D'Inde is a natural estuarine waterbody frequently influenced by high salinity from the Gulf of Mexico, no water quality criteria for these parameters are set for the bayou in the Louisiana Water Quality Standards. The listing for "other inorganics" in subsegment 030901 was for general informational purposes and not a listing for impairment of water use by any specific parameter.

(Emphasis added.) Thus, it is clear that the term "other inorganics" does not include mercury or nickel. For this reason, EPA does not have authority under the Clean Water Act or the court approved Consent Agreement to establish TMDLs for mercury and nickel for Bayou D'Inde.

Citgo Petroleum Corporation **Comment: 009/0052** **Response: 004/0034**

The October 10, 2001 letter from the LDEQ to EPA Region 6 as described above, made these recommendations for what pollutants should be de-listed and which should be retained:

De-list priority organics as a suspected cause of impairment for subsegments 030301, 030302, 030303, 030304, 040405, 030306, 030401, and 030402. Subsegment 030901 will remain on the list for priority organics because of a fish consumption advisory for HCB, HCBD, and PCBs.

De-list non-priority organics as a suspected cause from subsegments 030302, 030306, and 030901.

De-list other inorganics as a suspected cause from subsegment 030901.

For these reasons, EPA should have de-listed bromoform, tetrachloroethane and copper from the 3039d) list for Bayou D'Inde (and as noted above, mercury and nickel have never been on the list, so TMDLs should not be developed.

Citgo Petroleum Corporation **Comment: 009/0053** **Response: 004/0052**

EPA has not provided the public with adequate notice of the selection of specific POCs to allow for comment on the "listing" process or the opportunity to provide additional sampling and evaluations. Interested parties in the Lake Charles area have demonstrated the willingness to undertake detailed sampling studies--e.g., using "clean techniques"--for specific POCs that had previously been identified in the 303(d) list (e.g., copper). Interested parties in the Lake Charles area would like to have an opportunity to provide additional data on each of the 19 selected POCs, prior to EPA's final determination on the Proposed TMDLs.

Citgo Petroleum Corporation **Comment: 009/0054** **Response: 004/0053**

EPA's "flagging method" for identifying POCs from previous investigation data is not appropriate for a final TMDL determination. As explained on page ES-1 of the Draft TMDL Document, EPA has used a simple screening method to select POCs:

(i) pollutants with more than one exceedance of chronic water quality criteria, or with the mean of detected values exceeding human health criteria; and

(ii) pollutants with sediment concentrations exceeding ESGs or ERMs for 10% or more of samples.

This selection scheme is commonly used as a "screening" technique for identifying POCs which will then be the subject of a more rigorous, statistically robust investigation. The results of this subsequent phase of investigation are

then used for decision-making purposes (e.g., formal risk assessment, remedial decisions, treatment decisions, etc.). The use of a screening technique for making final selection of POCs for TMDL development is wholly inappropriate and has no scientific basis. It is also inconsistent with established EPA guidance and nationally recognized methodologies for pollution or contamination management. The NRC Report states: "Statistical inference procedures must be used on the sample data to test hypotheses about whether the actual condition of the waterbody meets the criterion."

Citgo Petroleum Corporation **Comment: 009/0056** **Response: 004/0001**

EPA has not made use of statistical techniques for evaluating the full range of results for POCs but rather has arbitrarily chosen to evaluate only exceedances.

A selection method based on finding "more than one exceedance" is arbitrary and has no sound scientific or statistical basis.

Citgo Petroleum Corporation **Comment: 009/0058** **Response: 004/0057**

To evaluate a set of results for comparison with a reference level, good scientific, statistical practice requires an appropriate estimate of central tendency--appropriate to the type distribution--and use of this as the benchmark for comparison. (Nonparametric statistical techniques may be appropriate for certain data distributions.)

Citgo Petroleum Corporation **Comment: 009/0059** **Response: 004/0058**

Good scientific practice also requires that nondetect values be assigned a surrogate value consistent with the data quality and general nature of the evaluation. Calculation of the "mean of detected values" is not appropriate since it biases the evaluation.

Citgo Petroleum Corporation **Comment: 009/0060** **Response: 004/0059**

EPA's use of sediment results and sediment reference levels is not appropriate to selection of POCs for a TMDL determination.

Recent investigations suggest that most sediment POC contamination, where it does exist, is the result of past, localized, historic events or practices. Given the regional sedimentation conditions in the estuary, contaminated sediments are probably undergoing active burial.

Citgo Petroleum Corporation **Comment: 009/0061** **Response: 004/0060**

There is no information presented on whether the investigation sediment data reflects conditions of sediments currently exposed to the water column. Sediment quality data are not correlated to any deposition dating information. It is likely that most areas of contaminated sediments are buried under more recently deposited sediments and not exposed to the water column. Covers as thin as a fraction of an inch can provide an effective barrier to sediment contamination mobility.

Citgo Petroleum Corporation **Comment: 009/0062** **Response: 004/0061**

EPA does not present any scientific evidence that sediment conditions are substantially affecting water quality. Given that the TMDL endpoints are water quality criteria for dissolved concentrations, EPA should present a detailed justification--based on scientifically valid, statistically representative, segment-specific data--for using sediment conditions as a basis for inferring the need for water column POCs and TMDLs.

Citgo Petroleum Corporation **Comment: 009/0063** **Response: 004/0062**

ESGs and ERMs are not promulgated standards for protection of water quality and therefore should not be used as sole references for the selection of POCs. EPA should remove the following POCs since sediment results were the only basis for their selection:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Citgo Petroleum Corporation **Comment: 009/0064** **Response: 004/0063**

The NRC Report specifically recommends movement of waterbodies from a preliminary list to an action list on the basis of narrative criteria.

Citgo Petroleum Corporation **Comment: 009/0065** **Response: 004/0064**

ESGs and ERMs are not promulgated standards for protection of water quality and, absent a rigorous scientific justification, should not be used as supporting references for the selection of POCs. EPA should eliminate consideration of sediment results in the determination of whether the following compounds warrant selection as POCs:

Mercury, Bayou D'Inde (030901)

Mercury, Calcasieu Ship Channel (030301)

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

Citgo Petroleum Corporation **Comment: 009/0066** **Response: 004/0071**

Sediment quality guidance values and EPA's national water quality criteria cannot be used for a TMDL because they have not been adopted as provisions of LDEQ's water quality standards. EPA has used the LDEQ surface water quality standards (LAC 33:IX.1101-1123) as compliance targets for the Proposed TMDLs. The LDEQ criteria are appropriate for this purpose because they were adopted by LDEQ through formal rulemaking, including public comment, and have been approved by EPA.

Citgo Petroleum Corporation **Comment: 009/0067** **Response: 004/0072**

EPA also used several other databases as TMDL targets for specific pollutants: (1) EPA national water quality criteria ("EPA WQC") (63 Fed. Reg. 68354, December 10, 1998); (2) effects range-median (ERM) values for sediments that were developed by the National Oceanic and Atmospheric Administration ("NOAA"); and EPA's equilibrium partitioning sediment guidelines (ESG). None of these databases that were used as TMDL targets have been adopted as Louisiana water quality criteria. They have no legal standing and have not been subject to public review and comment through a rulemaking process at either the national level or in Louisiana. Therefore, they cannot be legally used as TMDL targets unless EPA shows in the TMDL that they are correlated to water column or sediment toxicity, or bioaccumulation in aquatic animals, to a sufficient extent that they can be used in a cause-effect relationship to develop wasteload allocations ("WLA") and load allocations ("LA") for point and nonpoint sources, respectively.

Citgo Petroleum Corporation **Comment: 009/0068** **Response: 004/0073**

Sediments can be listed as impaired based on measured toxicity and the LDEQ's narrative toxicity standard (LAC 33:IX.1113.B.5); however, a toxicity identification evaluation ("TIE") must be performed to identify the specific pollutant(s) causing the toxicity before a TMDL can be performed. EPA has not performed a TIE for sediments, or the water column, that identifies the pollutant or pollutants that are allegedly causing the measured toxicity.

Citgo Petroleum Corporation **Comment: 009/0069** **Response: 004/0074**

Neither has EPA presented in the Draft TMDL Document any scientific analysis that demonstrates that the EPA WQC, NOAA ERM, or EPA ESG values have any relationship to the measured sediment and water column toxicity identified in certain segments of the estuary. Therefore, the use of these "targets" that are based on numeric levels in EPA and NOAA guidance that has never undergone review and comment as substitute water quality standards for Louisiana is unlawful and technically unsupported.

Citgo Petroleum Corporation **Comment: 009/0070** **Response: 004/0062**

NOAA ERM concentrations are not appropriate for establishing site-specific sediment toxicity correlations or TMDL targets. NOAA developed its sediment quality guidelines, including the ERM values, to assist it in the identification of sediments that required additional study in its National Status and Trends Program. These sediment quality guidelines are not intended to be sediment criteria and should not be used for this purpose. NOAA's summary of its guidelines includes the following statement:

The SQGs were not promulgated as regulatory criteria or standards. They were not intended as cleanup or remediation targets, nor as discharge attainment targets. Nor were they intended as pass-fail criteria for dredged material disposal decisions or any other regulatory purpose. Rather, they were intended as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments.

The NOAA SQGs cannot be used as de facto sediment quality criteria because they represent a range of aquatic organism species, sediment characteristics, and aquatic environments. The SQGs do not consider the bioavailabilty of pollutants that are influenced by local sediment and water chemistry. Likewise, the sensitivity of resident aquatic species is not reflected by the SQGs. Therefore, use of the NOAA SQGs as TMDL targets for certain pollutants found in sediments is not scientifically supported and cannot be the basis for the Proposed TMDLs.

EPA's SQGs are not sediment quality criteria and are not appropriate as TMDL targets. EPA's SQGs are based on the equilibrium partitioning concept. EPA originally proposed these values as sediment quality criteria but subsequently identified them as guidelines because they do not reflect site-specific conditions and bioavailability of pollutants with sufficient reliability to be used as numeric sediment quality criteria. This is true even though EPA considers the sediment organic content and acid volatile sulfides concentrations to predict the potential toxicity of nonionic organic chemicals and metals, respectively. The EPA SQGs are intended to be used in the same way as the NOAA SQGs--to identify sediments that merit additional study to determine whether toxicity is present and, if so, to conduct the required site-specific studies to identify the causative pollutant(s). They are not sediment quality criteria and cannot be used as target concentrations for a TMDL.

In summary, the draft TMDL has not developed an adequate scientific basis for establishing TMDLs to address sediment toxicity. No site-specific analysis is provided in the draft TMDL to support a site-specific correlation between sediment toxicity and the EPA and NOAA SQGs. Louisiana has no sediment quality criteria. In order to use LDEQ's narrative toxicity standard to address sediments, a site-specific cause and effect correlation between sediment pollutant concentrations and sediment toxicity must be determined before protective concentration targets can be established for a TMDL (i.e., a narrative standard translator). Because the SQLs are not sediment criteria and both EPA and NOAA explicitly caution against using them as such, the SQLs must not be used as TMDL targets unless such a correlation can be shown with site data. Moreover, this correlation should be pollutant-by-pollutant in order to have scientific integrity for the TMDL process.

Citgo Petroleum Corporation **Comment: 009/0073** **Response: 004/0078**

Because EPA has not developed an acceptable narrative standard translator for sediment toxicity, the proposed TMDLs for sediment in the draft TMDL are not scientifically supported and should not be adopted. Instead, EPA should provide for a data collection program to conduct the necessary sediment toxicity identification evaluations (TIE) to determine the pollutants causing sediment toxicity and the appropriate pollutant concentration targets.

Citgo Petroleum Corporation **Comment: 009/0074** **Response: 004/0079**

As noted by EPA on page 15 of the Draft TMDL Document, a TMDL should "provide an opportunity to compare relative contributions from all sources and consider technical and economic tradeoffs between point and non-point sources." There is no evidence within the Draft TMDL Document that EPA actually considered "technical and economic tradeoffs between point and non-point sources."

LCA submits that EPA made no effort to allow increased use of best management practices to control discharges of zinc, copper, and lead from nonpoint sources so as to allow increased loadings of zinc, copper, and lead from point sources. See, e.g., (a) proposed TMDL for zinc for Bayou Verdine (030306), (b) proposed TMDL for copper for Bayou D'Inde (030901), (c) proposed TMDL for copper for Upper Calcasieu Estuary and Ship Channel (030301), and (d) proposed TMDL for lead for Upper Calcasieu Estuary and Ship Channel (030301). LCA submits that failure to consider such tradeoffs for the affected pollutants renders the relevant TMDLs arbitrary, capricious, and legally impermissible.

Citgo Petroleum Corporation **Comment: 009/0076** **Response: 004/0081**

It is technically incorrect to use nonpoint source loadings for aquatic life criteria that are evaluated at the 7Q10. There is no surface runoff from rain events when the 7Q10 occurs; therefore, there should be no nonpoint source loadings of pollutants under such flow condition.

In the Draft TMDL Document, EPA uses a flow-based ratio method to estimate nonpoint source runoff contributions at critical low flow in the tributaries and estuary (page 14). No technical analysis is provided to support the conclusion that any surface runoff (i.e., nonpoint source flows) will occur coincident with the 7-day, 1-in-10-year low stream flows (7Q10). In fact, it is logical to assume that there will be no surface runoff during the critical low flow periods for this basin. The potential for surface runoff can be evaluated by reviewing the stream flow records in the watershed to determine when the 7Q10 flow has most recently occurred and then collecting and evaluating precipitation records for the same time period. It is probable that even if there is precipitation somewhere within the watershed during the period when the 7Q10 occurs, it will be very limited in both amount and spatial distribution

and will not contribute nonpoint source loadings of significance.

The Proposed TMDLs should be recalculated assuming that there is no nonpoint source loading for all pollutants that have aquatic life criteria as targets, i.e., those wasteload allocations that are based on the 7Q10.

Citgo Petroleum Corporation **Comment: 009/0078** **Response: 004/0083**

LCA submits that the 20% MOS used by EPA in the development of TMDLs in the Draft TMDL Document is overly conservative and inappropriate, especially in light of the conservative approach used by EPA in its modeling and projection methodologies. As noted by EPA in its "Guidance for Water Quality-Based Decisions: The TMDL Process," EPA 440/4-91-001 (April 1991):

> "The MOS is normally incorporated into the conservative assumptions used to develop TMDLs (generally within the calculations or models) and approved by EPA either individually or in State/EPA agreements. If the MOS needs to be larger than that which is allowed through the conservative assumptions, additional MOS can be added as a separate component of the TMDL …" (Emphasis added.)

The overly conservative approach used by EPA--in adding an additional margin of safety of 20% to the calculated TMDLs--renders the TMDLs arbitrary, capricious, and legally impermissible.

Citgo Petroleum Corporation **Comment: 009/0080** **Response: 004/0085**

A hydrodynamic model should have been used to estimate flows and dispersion in the estuary. Because of tidal dispersion, the water column-sediment interactions are very important in this estuary, and the failure to use a modeling approach that accounts for tidal dispersion and sediment transport is a fatal flaw in the Proposed TMDLs. EPA states that it evaluated the use of the WASP6 model to simulate pollutant transport and fate in the estuary and tributaries (Draft TMDL Document, page 16). EPA abandoned this effort and selected the mass balance approach because:

Although the WASP6 modeling system provides an excellent general tool to model the natural processes that determine the fate of various pollutants in the Calcasieu Estuary, data that can be used to estimate these processes in the Calcasieu Estuary are extremely limited. Because of these limitations, model results varied over a large range, depending on assumptions made about parameters for which there were no data. As a result, the use of the model as a quantitative tool to estimate allowable loads was not deemed appropriate.

This is not a justifiable reason to abandon the scientifically supported approach needed for a TMDL of this importance and magnitude. Indeed, this statement indicates that because EPA was under a schedule set by court order, it abandoned the best available scientific tools to perform the TMDL in order to meet its schedule.

Citgo Petroleum Corporation **Comment: 009/0080** **Response: 004/0083**

LCA further submits that margins of safety for TMDLs should be based on estimates of the uncertainty of the estimated wasteload and load allocations. EPA has done no analysis that justifies its arbitrary MOS of 20%. EPA has stated in the TMDL regulation that the MOS should be based on the estimated uncertainty in the TMDL predictions. While this regulation is not yet effective, this recommendation is both scientifically sound and good public policy. EPA should base any MOS on an uncertainty analysis of the of the TMDLs.

Citgo Petroleum Corporation **Comment: 009/0081** **Response: 004/0086**

TMDLs are routinely conducted by states and EPA using literature values for certain of the fate constants used in WASP6 and similar models. EPA has issued numerous guidance documents on selecting necessary coefficients for these models and performing sensitivity analyses of the results to better understand the reliability of model predictions. Models can also be parameterized using sensitivity analysis and/or optimization approaches. As a worst case simplification, pollutants that are modeled could be considered as conservative (i.e., not subject to biodegradation, chemical reactions, biodegradation or volatilization) in a model that simulates the hydrodynamics of the system. Even a conservative pollutant simulation approach using an appropriate mass transport model would be preferable to a mass balance. The mass balance approach does not allow any analysis of the precision and accuracy of the TMDL results, which is a fundamental concept that EPA included in the 2000 TMDL regulation.

The transport and dispersion of pollutants in the Calcasieu Estuary is complex and must be considered in any TMDL analysis. The basic hydrodynamics of the system can be represented by a number of models, including WASP6, and only requires fresh water inflows, tidal data, and the bathymetry of the estuary and tributaries (including the ship channel) to obtain realistic simulation. This information is readily available and should have been used to develop a model for determining pollutant transport in the tributaries and estuary (a previous water quality model developed

by LDEQ for dissolved oxygen evaluations has sufficient hydraulic data to serve as a starting point).

EPA should redo the draft TMDL using an appropriate model to simulate the complex hydrodynamics of the Calcasieu Estuary. The hydrodynamic model should be calibrated and verified with tidal data and salinity data, both of which are available.

Once an acceptably calibrated hydrodynamic model is available, a water quality model using those hydrodynamics should be developed. The WASP6 model would be acceptable. Alternatively, other models could also be used if they represent the fate and transport processes that occur in the estuary. As a minimum, the water quality model should include chemical reactions, biodegradation, volatilization, and particulate attachment and sedimentation for organic chemicals and particulate partitioning and sedimentation for metals. It must also include sediment resuspension and transport, for reasons discussed elsewhere in these comments. The water quality model should be calibrated to the extent practical with available data. Where insufficient data are available, then sensitivity analyses should be performed to determine the uncertainty in the model predictions. All of this information is justified for a TMDL that is as complex and has as much potential impact on dischargers as this one does.

Citgo Petroleum Corporation **Comment: 009/0084** **Response: 004/0089**

EPA's statement that tidal dispersion at low flows is unimportant and can be ignored is not accurate for the main channel of the estuary. EPA states in the Draft TMDL Document that tidal dispersion is not important at low (critical) stream flows (Draft TMDL Document, page 18). Also, EPA states that no estimates of tidal dispersion are available to use in a model. Both of these statements are inaccurate.

Failure to account for tidal dispersion (which LDEQ considers in NPDES permitting actions) results in overly conservative estimates for discharges to the estuary and is another major technical flaw in the TMDL evaluation. As stated in the previous comment, it is not true that a hydrodynamic model is impractical. Tidal records, salinity, bathymetry, and major inflow are all available and because basic hydraulics of estuarine systems can be reliably simulated with such models, they should be used to predict the effects of tidal dispersion.

Citgo Petroleum Corporation **Comment: 009/0086** **Response: 004/0091**

The TMDL incorrectly excludes partitioning of organic chemicals and metals to particulates and subsequent sedimentation and potential resuspension. EPA states that it did not include partitioning of organic chemicals and metals to particulates and subsequent sedimentation because:(1) it has no estimates of particle density and sedimentation rates; and (2) if metals and organic chemicals in particulates accumulate in contaminated sediments they will contribute to an existing impairment (Draft TMDL Document, page 18). Both of these arguments for not dealing with this fate mechanism are unjustified.

Citgo Petroleum Corporation **Comment: 009/0087** **Response: 004/0092**

With respect to sedimentation rates, there are ample data in the technical literature that can be used to estimate such rates in tidally-affected surface waters. As discussed earlier, default rates for variables such as sedimentation of particulates can be used in a model and sensitivity analyses can be used to establish acceptable estimates for prediction of water column pollutant concentrations. The particulates settling from the water column will not necessarily cause or contribute to elevated pollutant concentrations in the sediment. In fact, once effluent quality improves (which is probably already the case), the particulates settling from the water column may dilute the pollutant concentrations in the sediment. A simple calculation will show that if a point source is achieving a water quality-based effluent limit for a pollutant such as a metal, the concentration of the metal in any particulates that are discharged will typically be well below the elevated sediment concentrations reported in some segments of the Calcasieu Estuary. However, such an analysis to determine if pollutant chemicals attached to particulates actually could cause or contribute to sediment contamination was never done by EPA.

Citgo Petroleum Corporation **Comment: 009/0088** **Response: 004/0093**

A very important issue with respect to sediment-water column interaction and the fate of organic chemicals and metals in the Calcasieu Estuary is not evaluated by EPA (other than mentioning it) in the TMDL. Most if not all of the sediment contamination in the estuary and its tributaries is likely to be a legacy issue, from past discharges that were not treated as effectively as they are today. The existing discharges may not contribute to the existing sediment contamination and may actually be diluting sediment contaminant concentrations if they are having any effect at all. However, EPA did not evaluate any fate or transport mechanisms with respect to sediment contamination so there is no information or evaluation to determine if existing discharges are contributing to sediment pollutant concentrations. The absence of any scientific analysis of the cause and effect relationship between discharges and

sediment contaminants results in a scientifically flawed TMDL.

Citgo Petroleum Corporation **Comment: 009/0089** **Response: 004/0067**

The method used in the Draft TMDL Document to calculate wasteload allocations for sediment contaminants (PAHs, pesticides, etc.) has no scientific basis because it does not relate pollutant loads in the water column to concentrations in the sediment. EPA assumes in the draft TMDL that if the water quality criteria for organic chemicals and metals are achieved, the sediment targets will also be achieved. This assumption has no scientific foundation and is not supported by any technical analysis in the Draft TMDL Document. If the sediment concentrations are due to historic discharges (before current treatment was installed), then there is no correlation between the current point source discharges and the sediment pollution concentrations. As described in the preceding comment, EPA must evaluate and determine the cause and effect between organic chemical and metal concentrations in point and nonpoint discharges, the water column, and sediments before it can perform the TMDL for sediments. It has not done this, so the Proposed are fatally flawed with respect to the evaluation of sediments.

Citgo Petroleum Corporation **Comment: 009/0090** **Response: 004/0102**

EPA must perform uncertainty analyses of its TMDLs in order to demonstrate the reliability and reasonableness of the wasteload allocations. In the Draft TMDL Document, EPA assumes that all of the impairments identified in the Calcasieu Estuary can be eliminated by control of point sources. In the Draft TMDL Document, EPA makes no attempt to estimate the uncertainty in the proposed wasteload allocations and load allocations. Estimates of uncertainty are essential to allow the regulated community and the general public to understand how effective the Proposed TMDLs will be in achieving the water quality objectives.

If an appropriate uncertainty analysis is conducted, it will allow identification of those portions of the TMDL that require more data collection and analysis to result in wasteload allocations and load allocations that will eliminate the impairments, but will not be so overly conservative that they cause excessive economic and social impacts.

Citgo Petroleum Corporation **Comment: 009/0091** **Response: 004/0014**

LDEQ's chronic criterion for mercury embodies a screening level based on tissue residues. It is not appropriate to use the LDEQ screening level as though it is a chronic aquatic life criterion that must be achieved at the critical low flow. In the Draft TMDL Document, EPA uses the Louisiana surface water chronic aquatic life criterion as the target for mercury TMDLs (Draft TMDL Document, Appendix A). This mercury criterion is actually a screening level and if it is exceeded in the water column, the standards require that fish tissue samples be analyzed for methyl mercury and compared to the Food and Drug Administration tissue action level of 1 mg/kg (footnote 11 to Table 1, LAC 33:IX.1113, as quoted in Footnote 4 to LCA's Comments). The standards specify that if fish tissues concentrations of methyl mercury exceed the FDA action level, LDEQ must initiate the necessary studies to establish a protective site-specific water quality criterion for mercury.

EPA has not performed any fish tissue testing and thus cannot even establish exceedances of the mercury screening level. Further, EPA data developed in Phase II of the Calcasieu Estuary Superfund--where fish tissue testing was done--support LCA's conclusion that there is no exceedance of the aquatic protection criteria. Thus, the TMDL for mercury should be withdrawn.

Citgo Petroleum Corporation **Comment: 009/0093** **Response: 003/0004**

If it is determined that a TMDL for copper, lead, nickel or zinc is legally authorized, which is denied, then the TMDL should indicate that site-specific aquatic life water quality criteria for copper, lead, nickel, and zinc may be appropriate for all or some of the waterbodies in the Calcasieu Estuary. If such site-specific criteria are appropriate, the Proposed TMDLs should be revised.

Several states have identified reassessment of their water quality criteria using site-specific conditions as one of the first steps in their TMDL procedures. The reason for this is that aquatic life criteria that are based on EPA's national criteria are often overprotective when site-specific bioavailability of a pollutant is considered. This is especially true for metals. For example, in August 2000, Texas adopted site-specific aquatic life criteria for the Houston Ship Channel, side bays and tributaries, and San Jacinto Bay, which are estuarine systems with hydraulic and biological characteristics that are similar to the Calcasieu Estuary. The revised copper criteria, which are based on the EPA's water effects ratio method for developing site-specific criteria, are greater than the statewide estuarine copper criteria, which are based on the EPA national criteria, by a factor ranging from 1.9-2.3. EPA Region 6 approved these site-specific copper criteria on February 27, 2002.

It is probable that the existing Louisiana statewide criteria for copper, lead, nickel and zinc in estuarine waters are

also overprotective. The Proposed TMDLs should provide for development of site-specific aquatic life criteria for these metals and adjustment of wasteload allocations if such criteria are greater than the statewide criteria.

Citgo Petroleum Corporation **Comment: 009/0094** **Response: 004/0106**

The draft TMDL proposes wasteload allocations for certain pollutants that are lower than the applicable surface water criterion. This result conflicts with the NPDES regulations, because a discharge that is at a water quality criterion concentration cannot cause or contribute to an exceedance of that criterion. EPA applies its arbitrary MOS of 20% to each TMDL that it calculates, which results in wasteload allocations for some dischargers that are lower than the limits that are calculated with the applicable water quality criteria for zinc, mercury, and nickel. For example, EPA states that the zinc limit for Sasol that is calculated by applying the water quality criterion as an end of pipe limit (no mixing zone) is 1.95 lb/day (Draft TMDL Document, page 31). The proposed zinc TMDL for Sasol is 1.6 lb/day (Draft TMDL Document, Table 15). Thus, because of the 20% MOS applied by EPA, the allowable TMDL for Sasol is approximately 20% lower than the water quality criterion.

LCA believes that the proposed wasteload allocation for zinc, mercury, and nickel, are not consistent with EPA's NPDES regulations for water quality-based effluent limits (40 CFR 122.44(d)) because if the effluent concentrations are equal to the water quality criterion for a pollutant, the discharge cannot cause or contribute to an exceedance of the criterion because it cannot increase the ambient concentration above the criterion. A wasteload allocation that is set below the applicable criterion is inconsistent with EPA permitting regulations and is not scientifically justified. These TMDLs must be revised to set the wasteload allocations at concentrations no lower than the applicable water quality criteria.

Citgo Petroleum Corporation **Comment: 009/0095** **Response: 002/0013**

Because of the errors in locating discharge outfalls and estimating point source flows EPA has not included locations for all potential point sources, including CITGO (with respect to Bayou D'Inde (030901)).

Citgo Petroleum Corporation **Comment: 009/0096** **Response: 005/0056**

PAH's may be present in petroleum refinery point-source discharges, such as CITGO's. EPA should include waste load allocations for PAHs for all petroleum refineries. Benzo(a)anthracene, Benzo(a)pyrene, and Chrysene are reported to be common constituents in typical refinery effluents. (EPA, Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing, and Combustion, National Risk Laboratory, September 2001.) Allocations of PAHs should be provided to:

CITGO--Calcasieu Ship Channel (Segment 030301)

CITGO--Bayou D'Inde (Segment 030901)

Conoco--Calcasieu Ship Channel (Segment 030301).

Citgo Petroleum Corporation **Comment: 009/0097** **Response: 005/0057**

Given the intermediate level of POCs in point-source stormwater, the presence of some POCs naturally in stormwater (e.g., nickel) and very low waste load allocations for these POCs, EPA should waste load allocations for POCs for all major facilities, including CITGO. No determinations have been made on the presence of POCs in stormwater at the low levels indicated in the TMDL. Therefore, all major facilities with point source discharges of stormwater, including CITGO, should receive an allocation of each POC.

Citgo Petroleum Corporation **Comment: 009/0098** **Response: 004/0109**

EPA should provide water quality endpoints based on dissolved concentrations of POCs. LDEQ's water quality standards are specifically promulgated as dissolved standards since chronic aquatic toxicity and human health criteria are both based on uptake of dissolved fractions. EPA does not provide an evaluation of whether dissolved concentrations of proposed POCs exceed appropriate reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, should be provided on a dissolved basis.

Citgo Petroleum Corporation **Comment: 009/0099** **Response: 004/0111**

EPA should evaluate stream specific conditions that may result in adjusting endpoints. Other factors can affect water quality criteria for toxic POCs ,and chronic aquatic toxicity and human health criteria that are applicable to conditions in one geographic area may not be applicable to the Calcasieu Estuary. Segment specific water effects ratio studies should be undertaken to evaluate if "generic" endpoints for POCs are applicable.

Citgo Petroleum Corporation **Comment: 009/0100** **Response: 004/0113**

EPA should provide detailed references, data sets, and copies of actual calculations for the flow estimates.

The low flow estimate for the Calcasieu Ship Channel—Salt Water Barrier to Moss appears to be in error. The EPA low flow value appears to be the lowest daily flow for the Calcasieu River at the Kinder gauging station for 1999 (Ref 1). It is not a 7Q10 flow. In addition, this station is above the confluence with the West Fork and Houston River. Ref 2 provides a factor of 1.86 for adjusting 7Q10 flow at Kinder to the Saltwater Barrier. If 258 cfs is used as the low flow at Kinder, an appropriate estimate for low flow at the Saltwater Barrier would be 479 cfs. Alternatively, Ref. 2 provides a 7Q10 flow estimate for the Calcasieu River at the Saltwater Barrier of 375 cfs. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided an estimate of the critical flow based on tide cycle of 1,917 cfs at Louisiana Pigment (Ref. 3).

The low flow estimate for Bayou D'Inde appears to be in error. Ref. 4 provides a 7Q10 estimate of 7.6 cfs (4.9 mgd). However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided estimates of the critical flow based on tide cycle of 34.4 and 31.1 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). Just above PPG Outfall No. 001, near the Bayou D'Inde, critical flow based on tide-cycle is reported to be 121 cfs (Ref 7).

The estimates for mean flows for the segments appear to be in error. The 1999 mean flow at Kinder was 2,690 cfs (Ref. 1). Applying the area factor of 1.86 (Ref. 2) a mean flow estimate is 4,994 cfs. EPA should develop mean flow estimates based appropriate data for the remaining segments.

The estimate for harmonic mean flow for the Calcasieu Ship Channel appears to be in error. LDEQ has provided an estimates of the harmonic mean flow at Louisiana Pigment of 5,750 cfs (Ref. 3).

The estimate for harmonic mean flow for Bayou D'Inde appears to be in error. LDEQ has provided estimates of the harmonic mean flow of 103.3 and 93.4 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). At PPG near the mouth of Bayou D'Inde the harmonic mean flow is reported to be 363 cfs (Ref 7).

Citgo Petroleum Corporation **Comment: 009/0105** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements. There is currently a significant lack of capacity for obtaining "clean techniques" laboratory analyses. There are currently only two LDEQ certified laboratories which are offering "clean techniques" and both are out of state (Madison, Wisconsin and Seattle, Washington).

Citgo Petroleum Corporation **Comment: 009/0106** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of "generic" endpoints, and facility flows. Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of new information.

Citgo Petroleum Corporation **Comment: 009/0107** **Response: 004/0123**

EPA should eliminate sampling and testing of total metals. The TMDL endpoints are for dissolved concentrations in the water column. All TMDL water quality testing should be performed on a dissolved basis.

Citgo Petroleum Corporation **Comment: 009/0108** **Response: 004/0124**

EPA should eliminate the requirement for LDEQ to sample and monitor sediments. The TMDL endpoints are for dissolved concentrations in the water column. TMDL monitoring of sediment quality should be eliminated unless and until scientific evidence of sediment induced impairment of segment water quality can be demonstrated. Further study of this linkage is certainly warranted.

Citgo Petroleum Corporation **Comment: 009/0109** **Response: 004/0125**

Facilities should be allowed to report loadings on a "net" basis for POCs with nonpoint source load allocations. Many facilities in the Calcasieu Estuary utilize water from the segments for process and cooling water. "Background" loads in segment water--including upstream, tributary, atmospheric, and nonpoint source loads--are therefore present in this water at the point it is withdrawn and returned to the segment. EPA should expressly allow

for dischargers to subtract all "background" contributions from the facility's measured final discharge load.

Citgo Petroleum Corporation **Comment: 009/0110** **Response: 004/0126**

Facilities should be allowed to report loadings on a statistically valid, scientifically reasonable, averaged basis. TMDL wasteload allocations should be implemented as limitations on a statistically based measure of mean loadings. For human health criteria POCs, an annual mean loading is appropriate. For chronic aquatic criteria, a monthly average is appropriate.

Citgo Petroleum Corporation **Comment: 009/0111** **Response: 004/0127**

Given the many identified limitations of the science in the TMDL process, all proposed toxic TMDLs should be clearly qualified by EPA as "provisional". In its final determination on the Proposed TMDLs, EPA should include a section specifically discussing the limitations of the science in establishing toxic TMDLs for the Calcasieu Estuary and should clearly state that such TMDLs are provisional. In this section, EPA should set forth a process for prompt review and revision of the affected TMDLs upon obtaining new information. Such information could be generated either by EPA itself, LDEQ, or other interested parties. Finally, EPA should specifically acknowledge that future ambient water quality information may result in delisting of the affected waterbodies and/or POCs and rescinding of TMDLs.

Citgo Petroleum Corporation **Comment: 009/0112** **Response: 004/0128**

LCA notes that under the consent decree, effective April 1, 2002, entered into by the parties in those proceedings entitled "Sierra Club and Louisiana Environmental Action Network v. Gregg A. Cooke, Regional Administrator, Christine T. Whitman, Administrator, United States Environmental Protection Agency; and U.S. Environmental Protection Agency," Civil Action No. 96-0527, Section "S" (4) on the docket of the United States District Court for the Eastern District of Louisiana (the "Consent Decree), EPA agreed that for the waterbody/pollutant combinations in the Calcasieu Basin (including, without limitation, Waterbody Subsegments 030301, 030306, and 030901), TMDLs would be established by May 31, 2002, unless EPA received an extension of such deadline. LCA submits that the comments submitted in connection with the proposed TMDLs for the Calcasieu Basin justify a request by EPA to extend the deadline(s) for establishment of TMDLs for those waterbodies. LCA further submits that the proposed TMDLs for such waterbodies should not be finalized by EPA until EPA has had a reasonable opportunity to review, consider, and appropriately respond to the comments submitted on such proposed TMDLs. LCA thus requests EPA to take such action(s), as necessary, under the Consent Decree to obtain extension(s) of the May 31, 2002 deadline for establishment of TMDLs for such waterbodies.

RESTORE **Comment: 012/0001** **Response: 012/0001**

EPA and NOAA were supposed to have, last month, released the results of comprehensive analyses they have been doing on fish tissue. Those results are late, we are told, because of some sort of laboratory or interpretation delay.

Surely those two brand new datasets might have made it possible for everyone to more efficiently construct and comment on Calcasieu TMDLs and the proposed determinations of non-necessities.

RESTORE **Comment: 012/0002** **Response: 012/0002**

Your own Region 6 website has a section on the Calcasieu Estuary in which a massive amount of data is available showing that there is serious contamination of various types in the most heavily utilized sections of the river. RESTORE believes that it is imperative that you take another look at your proposals in order to properly restore the ecosystem and prudently protect the public health.

RESTORE **Comment: 012/0003** **Response: 012/0003**

Subsegment 030301 -- dioxins and other priority organics seem to have been omitted. We think they should be added. See attached Marplot sheets for PCD_T4 and Total Chlorobenzenes.

RESTORE **Comment: 012/0004** **Response: 012/0004**

See also the attached sheet for B2ETHXPHTH (bis-ethylhexylphthalate, BEHP). The presence of BEHP in the heavily utilized recreational areas such as Prien Lake is especially disturbing given the building evidence of that molecule's hormone disrupting effects even at low levels.

RESTORE **Comment: 012/0005** **Response: 012/0005**

On of the background elements in our concerns is the fact that there are strong mechanisms for resuspension of

contaminated sediments throughout this river system, mechanisms such as winds across shallow lakes, tugboats slugging through the shallow bayous, and supertankers grinding up the main Ship Channel. Those contaminated sediments are encountered by aquatic biota, children wading on the local parks beaches, water skiers, kneeboarders, wave runners, and other swimmers. The toxic chemicals adherent to the suspended clay particles often have more affinity for skin oils than for clay and are therefore easily transferred through dermal absorption into the human system.

RESTORE **Comment: 012/0006** **Response: 012/0006**

Look at another Marplot from your website, the one showing the number of ERMs Exceeded (ERM = Effects Range Median, an indication of the potency of the overall contamination situation).

Notice that the graphic is saturated with multiple exceedances at most locations in the central part of the study area.

In order to get these waters back to fishable and swimmable conditions(which we had hoped would be accomplished by 1983, one of the goals of the Clean Water Act if we recall correctly), there must be TMDLs that are meaningful, not convenient.

RESTORE **Comment: 012/0007** **Response: 012/0007**

It is unwise to say that a TMDL for priority organics is not needed in Segment 030302 Lake Charles when we can see the needs from the chlorobenzene and ERM Marplots.

RESTORE **Comment: 012/0008** **Response: 012/0008**

It is unwise to say that Priority Organics TMDLs are not needed in 030303 Prien Lake, 030304 Moss Lake, and 030305 Contraband Bayou when we can see the needs from the same Marplots as above and the BEHP Marplot.

RESTORE **Comment: 012/0009** **Response: 012/0009**

It is unwise to delete non-priority and other organics from segments 030302 Lake Charles, 030306 Bayou Verdine, and 030309 Bayou D'Inde since may of those molecules likely contribute to the mobility, solvency, biotic uptake, and dermal absorption of the more dangerous organics.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0001** **Response: 013/0001**

Mid-Continent is extremely disappointed that the EPA did not timely grant Mid-Continent's (dated April 12, 2002) and others' requests to extend the comment deadline. This in spite of gross errors identified in the document and significant legal issues that require significant time to address. The following are Mid-Continent's best effort to address the areas of major concern in the time allotted.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0002** **Response: 013/0002**

Table 3 (Page 8) shows the Conoco, Inc. refinery discharging to both Bayou Verdine and the Calcasieu River. It is Mid-Continent's understanding, however, that Conoco no longer discharges process waters to Bayou Verdine and has not done so for several years. In spite of this, the EPA calculates TMDLs for Conoco for Bayou Verdine. Conoco does discharge to the Calcasieu River (Upper Calcasieu Estuary and Ship Channel – Segment 030301), but EPA fails to include the discharge for Conoco in the TMDL calculations for this segment (begins on Page 55). It is Mid-Continent's understanding that this concern is also true for Sasol North America, Inc.'s (identified in the document as Condea Vista) discharge as well which is about to also be changed to the Calcasieu River.

The TMDLs for both Bayou Verdine and the Calcasieu Estuary must be reperformed to account for these changes. It not, one can argue that neither facility could discharge into the Calcasieu River since no wasteload allocation was provided.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0003** **Response: 013/0003**

Table 3 (Page 8) shows discharges from Citgo Petroleum into both Bayou D'Inde and the Calcasieu River. This is correct. The refinery complex discharges into the Calcasieu River while an auxiliary facility discharges into Bayou D'Inde.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0004** **Response: 013/0004**

The report states that Segment 030901 does not include all of Bayou D'Inde and part of the bayou is included in Segment 030301. Mid-Continent wants to ensure that the Citgo discharges are properly accounted for in the analysis.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0005 Response: 013/0005

If the Citgo discharge is actually into Segment 030901, then the EPA does not allocate a wasteload for the Citgo facility into Bayou D'Inde. Mid-Continent requests that the EPA confirm this situation. The EPA would have to reperform the TMDL calculation to account for the discharge.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0007 Response: 013/0007

Mid-Continent wants to ensure that the EPA properly characterizes the potential constituents found in wastewater discharges and accounts for these in the TMDL analysis. In September 2001, the EPA published a Research and Development document (EPA-600/R-01-066) entitled "Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing and Combustion". In Table 7-3 of this document, EPA lists several trace metals and trace organics found in a "typical" refinery wastewater. These include:

Arsenic
Chromium
Copper
Mercury
Nickel
Selenium
Zinc
Benzene
Toluene
Ethylbenzene
Acenaphthene
Benz[a]anthracene
Benzo[a]pyrene
Chrysene
Phenanthrene
Pyrene
2,4-Dimethylphenol

The identified sources of this data are two American Petroleum Institute (API) documents and an EPA document. These include:

API Publication No. 4296 (1978)
API Publication No. 4336 (1981)
EPA Document EPA/440/1-82/014 (NTIS PB 83-172569) (1982)

Mid-Continent requests that all of these documents be made part of the record for this rulemaking action.

If the EPA is required to calculate a TMDL for one of these constituents and a refinery discharge is involved, then the EPA must include an allocation for that discharge point.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0008 Response: 013/0008

The Louisiana Department of Environmental Quality (DEQ) provided compelling data during the TMDL process justifying "delisting" of several waterbody impairments. Mid-Continent is disappointed that the EPA did not give great weight to this information in the development of the TMDLs. In the response to comment period, Mid-Continent urges the EPA to give serious consideration of this information and therefore remove the constituents from the TMDL listing or make other appropriate adjustments.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0009 Response: 004/0035

The EPA cites numerous sources as the information to determine whether a waterbody is impaired and therefore subject to a TMDL evaluation. Some of this data is over ten years old and much of it, particularly the sediment data, was performed to identify potential areas of high localized contamination. These samples are not random statistical samples and therefore not a true indication of the overall contribution contaminated sediments may have on water quality. The use of localized "hot spots" grossly over predicts the extent of the potential contribution of contaminated sediments to water quality. In many cases, the contaminated sediment data is the only justification

EPA presents to declare the waterbody is impaired and therefore subject to TMDL analysis.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0010 Response: 004/0010

Mid-Continent is also concerned about EPA's treatment of the data. In recent water quality analysis and TMDL development, the DEQ has relied on "clean techniques" for determining constituent concentrations. This is actually required by DEQ rules. This due to the fact that the limits of concern are very low and any outside contamination could result in a false result. Much of the data relied upon by EPA in this report is from sampling that did not meet such stringent quality control processes. When such "clean" data was available, EPA either ignored the findings or did not give it proper consideration. EPA appears to follow the philosophy that more poorer-quality data is better than less higher-quality data. As a result, the EPA analysis identifies more impairment than probably actually exists.

Mid-Continent believes the Calcasieu Estuary TMDL process development was not based on sound statistical and analytical bases and therefore is flawed. The EPA should reperform the analysis using only the highest quality data available. If more data is needed, then it should be collected.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0011 Response: 004/0060

The EPA does not present information whether the sediment data relied upon actually interacts with the water column. As stated previously, some of this data is several years old. In at least one of the TMDLs (PAHs for Bayou Verdine), EPA acknowledges that sediment concentrations "would decline as loads decline and additional sediment is deposited on top of existing contaminated sediment." EPA fails to acknowledge this phenomenon throughout the TMDL document for all streams and constituents. Most of the identified contamination is a result of past practices, which are currently undergoing and will continue to undergo active burial. It is not appropriate to select pollutants of concern based on these past historical discharges. Mid-Continent recommends that the EPA remove those pollutants of concern that EPA selected solely on sediment contamination data.

The only approved compliance targets for TMDL development are those contained in the DEQ surface water quality standards. These have been adopted through the formal notice and comment procedures by the state's Administrative Procedures Act.

EPA however uses several other databases for TMDL targets that are not listed in DEQ regulations and have not been through the rulemaking approval process. These include EPA's national water quality criteria, NOAA's effects range-median values, and EPA's equilibrium partitioning sediment guidelines. These can not be used as TMDL targets when EPA can demonstrate that they correlated to the DEQ's numeric or narrative toxicity standard (LAC 33:IX.1113.B.5.). The document provides no such correlation and therefore these databases can not be used.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0013 Response: 004/0002

Mid-Continent believes it is outside EPA's authority to establish TMDLs for pollutants not identified in the 303(d) list. Authority to determine the waterbodies and pollutants of concern for the 303(d) list belongs to the states. In this instance, however, the EPA has usurped Louisiana's authority by skipping the 303(d) listing process and proceeding directly to TMDL development. If the EPA believes certain segments and/or pollutants should be added to the 303(d) list, the EPA should first submit this information to the DEQ for review. If, and only if, the state concurs with this recommendation and the 303(d) list is amended, should EPA proceed with TMDL development.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0014 Response: 004/0025

Several of the stream segment flow estimates appear to be in error.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0015 Response: 004/0041

The TMDL end points selected should be based only on "dissolved" concentrations of pollutants of concern. It is not clear whether the data used by EPA is based on "dissolved" or "total" concentrations. Note: DEQ's water quality standards are based on "dissolved" concentrations.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0016 Response: 013/0016

Some wasteload allocation concentrations are lower than the applicable surface water criterion. EPA is only authorized to regulate to a concentration that would cause or contribute to an exceedances of the criterion. Concentrations less than the criterion can not have such an impact.

Louisiana Mid-Continent Oil & Gas Association Comment: 013/0017 Response: 004/0089

EPA failed to account for tidal dispersion flows in the estuary which can have a significant impact on TMDL

calculation.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0018** **Response: 004/0083**

EPA uses a generic 20% margin of safety for all segments regardless of the appropriateness of that value for the individual segment. Margins of safety should be segment-specific based on the level of unknown information (e.g. other sources). A blanket 20% is arbitrary and capricious.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0019** **Response: 004/0079**

The EPA imposed the load reduction only on point sources and did not impose any limits on nonpoint sources. EPA did not show any evidence that it weighed the technical and/or economic tradeoffs between controlling point and nonpoint sources.

Louisiana Mid-Continent Oil & Gas Association **Comment: 013/0020** **Response: 004/0022**

The mass balance approach for calculating the TMDLs is overly simplistic and not appropriate for a complex, tidally influenced area such as the Calcasieu Estuary.

Conoco Inc. **Comment: 014/0001** **Response: 014/0001**

Conoco requests that EPA (1) establish wasteload allocations for Conoco in the Calcasieu River; and (2) conclude that TMDLs are not necessary for occasional discharges into Bayou Verdine or establish wasteload allocations for Conoco's intermittent discharges into Bayou Verdine based upon annual average rather than a daily load.

Conoco Inc. **Comment: 014/0002** **Response: 002/0012**

The proposed TMDLs assigned wasteload allocations to Conoco in Bayou Verdine (segment 030306) only. Please note, however, that Conoco typically discharges its treated industrial effluent to the Calcasieu River pursuant to permit no LA0003026, issued by EPA in 1997. This permit authorizes Conoco to discharge treated process wastewater, utility waste water, process area stormwater runoff, and hydrostatic test water into the Calcasieu River via Conoco's Outfall 001, which is equipped with a diffuser.

Conoco Inc. **Comment: 014/0003** **Response: 014/0003**

There are two additional outfalls that were permitted to discharge effluent other than non-contact stormwater runoff into Bayou Verdine. However, these outfalls may discharge only on a temporary basis, under unusual conditions that amount to emergency bypasses. Outfall 002 is permitted for "emergency discharge of process area stormwater and hydrostatic test water" and Outfall 005 is permitted to discharge into Bayou Verdine only when discharge from Outfall 001 is "not possible due to pipeline maintenance or pump repair." In addition, there are a number of non-contact stormwater runoff outfalls that discharge into both Bayou Verdine and the Calcasieu River.

Conoco Inc. **Comment: 014/0004** **Response: 014/0004**

Conoco therefore requests that EPA re-calculate wasteload allocations for the Calcasieu River and assign Conoco's discharge a wasteload allocation based on accurate, up-to-date information about Conoco's flow rates.

Conoco Inc. **Comment: 014/0005** **Response: 014/0005**

Further, Conoco urges EPA to reconsider the necessity of TMDLs in the Bayou Verdine. As indicated in comments provided by Sasol, Inc., (formerly CONDEA Vista), Sasol's discharge is anticipated to move to the Calcasieu River, with the consequence that there will be no more daily loading into the Bayou Verdine. Since the only future discharges into the Bayou Verdine will be related to isolated events such as maintenance on each facility's primary outfall or severe rainfall conditions, EPA should reconsider whether it is necessary to establish TMDLs for all of Bayou Verdine. If EPA concludes that some sort of load limitation is necessary, then EPA should consider establishing annual pound limitations rather than daily load requirements.

Conoco Inc. **Comment: 014/0006** **Response: 014/0006**

Further, as described in detail in Section IV of the attached technical comments, it appears that other data presumably imported from PCS also may be inaccurate. Most significantly, it appears that other facilities discharge outfalls have been mis-located and the flow data for Conoco and other has been underestimated. Since LDEQ has been delegated authority to administer the NPDES program in Louisiana, it may be more appropriate for EPA to collect source assessment data from LDEQ than to rely on PCS.

Conoco Inc. **Comment: 014/0007** **Response: 014/0007**

Finally, Conoco anticipates that changing the incorrect assumptions about its discharge location and clarifying possible incorrect assumptions about flow rates and effluent loading will result in the assignment of fundamentally different TMDLs and wasteload allocations. Accordingly, Conoco requests that TMDLs be re-proposed for the Calcasieu River Basin in order to afford interested persons notice and opportunity to comment on what we anticipate will be entirely new TMDLs and wasteload allocations.

Conoco Inc. **Comment: 014/0008** **Response: 014/0008**

Finally, in addition to the points made above and in Conoco's attached technical comments, Conoco concurs with the comments submitted by Louisiana Mid-Continent Oil and Gas Association (Mid-Continent) and Sasol North America, Inc. In the interest of both brevity and time (since Conoco shares Mid-Continent's dismay that the requested extension of time was not granted), Conoco adopts the points made in each of these comments as our own, except to the extent of any conflict with specific statements made herein.

Conoco Inc. **Comment: 014/0009** **Response: 002/0018**

EPA has not provided the public with adequate notice of the selection of specific POCs to allow for comment on the "listing" process or the opportunity to provide additional sampling and evaluations.

Section 303(d) of the Clean Water Act establishes the required process for designating TMDLs. First, Section 303(d)(1)(A) directs the State to identify waters for which applicable water quality standards cannot be achieved using point source effluent limitations based on best practicable control technology and/or secondary treatment. For each "listed" water, Section 303(d)(1)(C) requires each State to establish total maximum daily loads "for those pollutants which the Administrator identifies under section 304(a)(2) for such calculation." (emphasis added) Section 304(a)(2) refers to the procedures the states must follow in adopting water quality criteria and standard. To the extent that EPA currently proposes TMDLs for "pollutants of concern" based on guidance or criteria other than LDEQ water quality standards, the draft TMDL amounts to ad hoc adoption of water quality standards without due process of law.

Conoco Inc. **Comment: 014/0010** **Response: 004/0052**

Interested parties in the Lake Charles area have demonstrated willingness to undertake detailed sampling studies--e.g., using "clean techniques" -- for specific POCs that had previously been identified in the Court-Ordered List (e.g. copper). Interested parties in the Lake Charles area would like to have an opportunity to provide additional data on each of the 19 selected POCs, prior to EPA final determination of a TMDL.

Conoco Inc. **Comment: 014/0011** **Response: 004/0033**

EPA has not addressed information submitted by LDEQ which provides a basis for “delisting” copper.

LDEQ (in a letter to EPA dated August 20,2001) provided information for delisting of copper from the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D’Inde (030901).

Conoco Inc. **Comment: 014/0012** **Response: 004/0034**

EPA has not addressed information submitted by LDEQ which provides a basis for “delisting” several Court-Ordered “categorical” impairments.

LDEQ (in a letter to EPA dated October 10,2001) provided information clarifying the listings of “Priority organics” and “Non-priority organics” for the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D’Inde (030901), and other segments. Based on this information LDEQ stated that the only POCs which are suspected cause of waterbody impairment are:

Hexachlorobenzene, Hexachlorobutadiene, and PCBs for Bayou D’Inde (only).

LDEQ stated that no other use impairments for organic POCs have been documented.

LDEQ (In the same letter to EPA dated October 10,2001) provided information clarifying the listings of “Other inorganics” for Bayou D’Inde (030901). LDEQ stated that this listing was for general information purposes and not a listing for a specific parameter.

Conoco Inc. **Comment: 014/0013** **Response: 004/0035**

Notwithstanding the above, EPA has sought to select POCs for these “categorical” impairments by evaluating information from several studies of Calcasieu Estuary area which were not designed to support TMDL

determinations.

In the Draft TMDL EPA states that data from the following seven reports were reviewed and evaluated to identify POCs:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou D'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of The Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

In each case these reports were the result of limited water and sediment quality investigations that were intended to focus on specific legacy contamination issues. These studies have a number of limitations which render them unsuitable for use in identifying TMDL POCs

The sampling schemes—locations, depths, compositing, etc—of these studies were primarily designed to evaluate known or suspected areas of contamination (i.e., "hot spots") within segments. The studies were not designed to provide, and do not provide, a statistically representative set of data for the respective segments. Absent a statistically valid sampling scheme (e.g. random sampling or grid sampling), the findings of POCs above reference levels is only indicative of localized contamination in the specific areas of investigation.

Conoco Inc. **Comment: 014/0015** **Response: 004/0037**

EPA should eliminate selection of POCs solely based on localized "hot spot" sediment data.

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Conoco Inc. **Comment: 014/0016** **Response: 004/0038**

The LDEQ information referred to under 2a) above—combined with the absence of data showing presence in segment water or sediment above reference levels—should be sufficient grounds to delist the following POCs:

Phenol, Bayou Verdine (030306)

Bromoform, Bayou D'Inde (030901)

1,1,2,2 Tetrachloroethane, Bayou D'Inde (030901)

Conoco Inc. **Comment: 014/0017** **Response: 002/0003**

Water and sediment quality data in these studies were not developed using consistent Data Quality Objectives (DQOs) appropriate for a TMDL process. The reference levels for POCs requires very low detection limits. There is no indication that the above studies used appropriate field and laboratory techniques necessary to assure the quality of these results, particularly a reasonable minimization of false positives at the reference level.

Conoco Inc. **Comment: 014/0018** **Response: 004/0040**

EPA's Draft TMDL does not address whether the above studies found the POCs under conditions consistent with application of the reference level—such as those relevant to POC fate, mobility, chemical form/stability, bioavailability, and biotoxicity.

Conoco Inc. **Comment: 014/0019** **Response: 004/0041**

Water quality references levels are for dissolved concentrations and EPA should be evaluating only results for

dissolved concentrations of POCs.

Conoco Inc. **Comment: 014/0020** **Response: 004/0042**
Reference levels for marine conditions should be applied to marine waters and reference levels for fresh water should be applied to samples from fresh conditions.

Conoco Inc. **Comment: 014/0021** **Response: 004/0043**
Reference levels for fresh water must adjusted for hardness.

Conoco Inc. **Comment: 014/0022** **Response: 003/0004**
Other factors affecting the application of water quality reference levels should be considered (e.g. using techniques similar to a Water Effects Ratio study.)

Conoco Inc. **Comment: 014/0023** **Response: 004/0045**
Reference levels that are not appropriate to local biota should not be used.

Conoco Inc. **Comment: 014/0024** **Response: 004/0046**
Sediment reference levels should be adjusted based on sediment mineral type, soil type, AVS/SEM ratio, and other relevant characteristics.

Conoco Inc. **Comment: 014/0025** **Response: 004/0047**
Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Conoco Inc. **Comment: 014/0026** **Response: 004/0053**
5. EPA's "flagging method" for identifying POCs from previous investigation data is not appropriate for a final TMDL determination.

As explained on page ES-1 of the Draft TMDL, EPA has used a simple screening method to select POCs:

Pollutants with more than one exceedance of chronic water quality criteria, or with the mean of detected values exceeding human health criteria; or

Pollutants with sediment concentrations exceeding ESGs or ERMs for 10% or more of samples.

This selection scheme is commonly used as a "screening" technique for identifying POCs which will then be the subject of a more rigorous, statistically robust investigation. The results of this subsequent phase of investigation are then used for decision-making purposes (i.e. formal risk assessment, remedial decisions, treatment decisions, etc.). The use of a screening technique for making final selection of POCs is wholly inappropriate and has no scientific basis. It is also inconsistent with established EPA guidance and nationally recognized methodologies for pollution or contamination management.

The NRC Report states: "Statistical inference procedures must be used on the sample data to test hypotheses about whether the actual condition of the waterbody meets the criterion."

Conoco Inc. **Comment: 014/0028** **Response: 004/0001**
EPA has not made use of statistical techniques for evaluating the full range of results for POCs but rather has arbitrarily chosen to evaluate only exceedances.

A selection method based on finding "more than one exceedance" is arbitrary and has no sound scientific or statistical basis.

Conoco Inc. **Comment: 014/0030** **Response: 004/0057**
To evaluate a set of results for comparison with a reference level good scientific, statistical practice requires an appropriate estimate of central tendency—appropriate to the type distribution—and use of this as the benchmark for comparison. (Nonparametric statistical techniques may be appropriate for certain data distributions.)

Conoco Inc. **Comment: 014/0031** **Response: 004/0058**
Good scientific practice also requires that nondetect values be assigned a surrogate value consistent with the data quality and general nature of the evaluation. Calculation of the "mean of detected values" is not appropriate since it

biases the evaluation.

Conoco Inc. **Comment: 014/0032** **Response: 004/0059**

EPA's use of sediment results and sediment reference levels is not appropriate to selection of POCs for a TMDL determination.

Recent investigations suggest that most sediment POC contamination, where it does exist, is the result of past, localized, historic events or practices. Given the regional sedimentation conditions in the estuary, contaminated sediments are probably undergoing active burial.

Conoco Inc. **Comment: 014/0033** **Response: 004/0060**

There is no information presented on whether the investigation sediment data reflects conditions of sediments currently exposed to water column. Sediment quality data are not correlated to any deposition dating information. It is likely that most areas of contaminated sediments are buried under more recently deposited sediments and not exposed to the water column. Covers as thin as a fraction of an inch can provide an effective barrier to sediment contamination mobility.

Conoco Inc. **Comment: 014/0034** **Response: 004/0061**

Even assuming sediment results are indicative of conditions at the water column interface, EPA does not present any scientific evidence that sediment conditions are substantially affecting water quality. Given that the TMDL endpoints are water quality criteria for dissolved concentrations, EPA should present a detailed justification—based on scientifically valid, statistically representative, segment-specific data—for using sediment conditions as a basis for inferring the need for a water column POCs and TMDLs.

Conoco Inc. **Comment: 014/0035** **Response: 004/0062**

ESGs and ERMs are not promulgated standards for protection of water quality and therefore should not be used as sole references for the selection of POCs. The EPA should remove the following POCs since sediment results were the only basis for their selection:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Conoco Inc. **Comment: 014/0036** **Response: 004/0063**

The NRC Report specifically recommends movement of waterbodies from a preliminary list to an action list on the basis of narrative criteria.

Conoco Inc. **Comment: 014/0037** **Response: 004/0064**

ESGs and ERMs are not promulgated standards for protection of water quality and absent a rigorous scientific justification should not be used as supporting references for the selection of POCs. EPA should eliminate consideration of sediment results in the determination of whether the following compounds warrant selection as POCs:

Mercury, Bayou D'Inde (030901)

Mercury, Calcasieu Ship Channel (030301)

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

Conoco Inc. **Comment: 014/0038** **Response: 004/0109**

EPA should provide water quality endpoints based on dissolved concentrations of POCs. LDEQ's water quality standards are specifically promulgated as dissolved standards since chronic aquatic toxicity and human health criteria are both based on uptake of dissolved fractions. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether dissolved concentrations of proposed POCs exceed appropriate reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, should be provided on a dissolved basis.

Conoco Inc. **Comment: 014/0039** **Response: 004/0110**

EPA should provide freshwater quality endpoints for nickel and copper in fresh portions of segments.

LDEQ requires that freshwater chronic aquatic toxicity criteria be applied for nickel (a POC in Bayou Verdine and Bayou D'Inde) and copper (a POC in the Calcasieu Ship Channel and Bayou D'Inde) and be adjusted for hardness. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether nickel and copper exceed appropriate freshwater, hardness adjusted reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, for nickel and copper should take into account fresh conditions and hardness.

Conoco Inc. **Comment: 014/0040** **Response: 004/0111**

EPA should evaluate stream specific conditions that may result in adjusting endpoints. (Table 2. Summary of POCs)

Other factors can affect water quality criteria for toxic POCs and chronic aquatic toxicity and human health criteria that are applicable to conditions in one geographic area may not be applicable to the Calcasieu Estuary. Segment specific Water Effects Ratio studies should be undertaken to evaluate if "generic" endpoints for POCs are applicable.

Conoco Inc. **Comment: 014/0041** **Response: 004/0113**

EPA should provide detailed references, data sets, and copies of actual calculations for the flow estimates.

The low flow estimate for the Calcasieu Ship Channel—Salt Water Barrier to Moss appears to be in error.

The EPA low flow value appears to be the lowest daily flow for the Calcasieu River at the Kinder gauging station for 1999 (Ref. 1). It is not a 7Q10 flow. In addition, this station is above the confluence with the West Fork and Houston River. Ref 2 provides a factor of 1.86 for adjusting 7Q10 flow at Kinder to the Saltwater Barrier. If 258 cfs is used as the low flow at Kinder, an appropriate estimate for low flow at the Saltwater Barrier would be 479 cfs.

Alternatively Ref. 2 provides a 7Q10 flow estimate for the Calcasieu River at the Saltwater Barrier of 375 cfs.

However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided an estimate of the critical flow based on tide cycle of 1,917 cfs at Louisiana Pigment (Ref. 3)

The low flow estimate for Bayou D'Inde appears to be in error.

Ref. 4 provides a 7Q10 estimate of 7.6 cfs (4.9 mgd). However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided estimates of the critical flow based on tide cycle of 34.4 and 31.1 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). Just above the PPG canal (PPG Outfall No. 001) near the Bayou D'Inde critical flow based on tide-cycle is reported to be 121 cfs (Ref 7). (Table 3. Summary of Segment Flow Estimates)

The estimates for the low flows on the remaining segments also appear to be in error.

Ref. 4 provides a 7Q10 estimate of 1.4 cfs (0.9 mgd) for Bayou Verdine. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. EPA should develop critical flow estimates based on tide cycle for the remaining segments.

The estimates for mean flows for the segments appear to be in error.

The 1999 mean flow at Kinder was 2,690 cfs (Ref. 1) Applying the area factor of 1.86 (Ref. 2) a mean flow estimate is 4,994 cfs. EPA should develop mean flow estimates based appropriate data for the remaining segments.

The estimate for harmonic mean appears to be in error.

LDEQ has provided an estimate of the harmonic mean flow in the Calcasieu Ship Channel at Louisiana Pigment of 5,750 cfs. LDEQ has provided estimates of the harmonic mean flow of 103.3 and 93.4 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). At PPG near the mouth of Bayou D'Inde the harmonic mean flow is reported to be 363 cfs.

EPA should develop estimates of harmonic mean flow on the remaining segments based appropriate data.

Conoco Inc. **Comment: 014/0047** **Response: 004/0028**

EPA's information on the location of several major point-source discharge outfalls contain numerous significant errors.

These errors include:

Concoco--primary outfalls have been moved to the Calcasieu Ship Channel (Segment 030301).

Sasol North America, Inc. (formerly CONDEA Vista)--permit being finalized to move primary outfalls to the Calcasieu Ship Channel (Segment 030301).

Citgo--outfalls for CitCon portion of operations (001, 002, 012) to Bayou D'Inde (Segment 030901) were not included.

Lyondell--stormwater Outfalls 025, 026, and 032 to Bayou Verdine (Segment 030306) were not included.

PPG--Outfall 002 to Calcasieu Ship Channel (Segment 030301) was not included.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary outfalls to ensure that they are located on the proper segment.

Conoco Inc. **Comment: 014/0048** **Response: 004/0026**

EPA's estimates of mean flow for most major point-source discharge outfalls contain numerous significant errors.

EPA failed to include any estimated flow for Conoco in the Calcasieu River, and the flow rates attributed to Conoco assumed Bayou Verdine discharge are inaccurate. Based on Conoco's mean flow reported in monthly Discharge Monitoring Reports submitted in 2001, Conoco's current mean flow of treated industrial process water ranges from .39-5.5 mgd, with a maximum flow reported in 2001 of 10.19 mgd (note that these values include intermittent discharge from outfall 002 into Bayou Verdine). Conoco is also aware of errors in flow rates attributed to other major dischargers.

Citgo Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 5.

Lyondell Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 4.

PPG Bayou D'Inde (Segment 030901) Discharge—off by a Factor of 10.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of mean flows for each segment.

Conoco Inc. **Comment: 014/0049** **Response: 004/0030**

EPA's estimates of average maximum flow for most major point-source discharge outfalls contain numerous significant errors.

EPA's estimates of maximum flow contain similar errors. Since these errors reflect only a partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of maximum flows for each segment.

Conoco Inc. **Comment: 014/0050** **Response: 004/0031**

EPA's should determine discharge maximum flows for use in chronic toxicity TDMLs using a statistically valid approach.

EPA's estimate of average monthly maximum discharge flow is arbitrary. A statistically valid representation of maximum flow for an appropriate return period should be determine. This is particularly important since a significant portion of some facilities' loads may be associated with stormwater discharges.

Conoco Inc. **Comment: 014/0051** **Response: 014/0051**

The treatment of nondetected values in assessing loads of existing point sources has no sound technical basis. In assessing loads of various pollutants of concern that are currently contributed by point sources, EPA treated nondetected values differently, depending on the reporting convention that was used by the facility reporting the data. If the facility reported a nondetected value as "<" the relevant detection limit, EPA assumed the pollutant of concern actually was present at a concentration of one-half the detection limit, and used that value in calculating loads. However, EPA does not provide a technical justification to support this excessively conservative assumption, which has been critiqued as "having no theoretical basis" (Helsel and Hirsch, 1993).

If the nondetected analyte was reported as zero, EPA did not include a value of one-half the detection limit in its load calculations. However, zero values were disregarded in the calculations of average and daily loads. EPA does not provide a technical basis for treating these values differently, nor does EPA provide a technical justification for either of the approaches selected for treating nondetect values.

Conoco Inc. **Comment: 014/0052** **Response: 004/0022**

As detailed in comments submitted by Sasol and the Louisiana Mid-Continent Oil & Gas Association (LMOGA), the mass balance model is inappropriate and technically inadequate for use in calculating TMDLs for the Calcasieu Estuary. In addition, however, there are several concerns with the application of the mass balance model to calculate TMDLs.

Conoco Inc. **Comment: 014/0053** **Response: 004/0025**

EPA needs to correct errors in the segment flow.

Conoco Inc. **Comment: 014/0054** **Response: 004/0026**

EPA needs to correct errors in facility outfall flow.

Conoco Inc. **Comment: 014/0055** **Response: 005/0053**

EPA needs to determine if certain POC point source loadings are associated with point source stormwater outfalls and develop statistically valid segment flow estimates.

For some POCs, significant point source loads may be attributable to stormwater outfalls. In these cases, use of low flows for dilution are not reasonable since facility discharges of the POC would occur during periods when significantly higher stream flows would be present. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate segment flow estimates for stormwater events.

Conoco Inc. **Comment: 014/0056** **Response: 004/0027**

EPA needs to substitute statistically valid estimates of facility flows for all stormwater driven TMDL mass balance calculations.

EPA's method for estimating facility maximum discharge (for use with chronic toxicity POC TMDLs) is arbitrary and does not reflect reasonable, statistically-based estimates. Maximum flows are associated with stormwater discharges. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate facility flow estimates for stormwater events.

Conoco Inc. **Comment: 014/0057** **Response: 005/0055**

Due the errors in locating discharge outfalls and estimating point-source flows EPA has not included allocations for all potential point sources.

Conoco Inc. **Comment: 014/0058** **Response: 005/0056**

PAHs may be present in petroleum refinery point-source discharges. EPA should include wasteload allocations for PAHs for all petroleum refineries.

Benzo(a)anthracene, Benzo(a)pyrene, and Chrysene are reported to be common constituents in typical refinery effluents. (EPA, Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing, and Combustion, National Risk Laboratory, September 2001.) Allocations of PAHs should be provided to:

Conoco—Calcasieu Ship Channel (Segment 030301)

Citgo—Calcasieu Ship Channel (Segment 030301)

Citgo—Bayou D'Inde (Segment 030901)

Conoco Inc. **Comment: 014/0059** **Response: 005/0057**

Given the indeterminate level of POCs in point-source stormwater, and very low wasteload allocations for these POCs, EPA should include wasteload allocations for POCs for all major facilities.

No determinations have been made on the presence of POCs in stormwater at the low levels indicated in the TMDL. Therefore, all major facilities with point-source discharges of stormwater should receive an allocation of each POC.

Conoco Inc. **Comment: 014/0060** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements.

There is currently a significant lack of capacity for obtaining "clean techniques" laboratory analyses. There are currently only two LDEQ certified laboratories which are offering "clean techniques" and both are out of state (Madison, Wisconsin and Seattle, Washington).

Conoco Inc. **Comment: 014/0061** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of "generic" endpoints, and facility flows.

Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of a new information.

Conoco Inc. **Comment: 014/0062** **Response: 004/0127**

Given the many identified limitations of the science in this TMDL process, all proposed toxic TMDLs should be clearly qualified by EPA as "provisional". EPA should include a section specifically discussing the limitations of the science in establishing toxic TMDLs for the Calcasieu Estuary and should clearly identify that such TMDLs are provisional. In this section EPA should set forth a process for prompt review and revision of the TMDL PA upon obtaining new information. Such information could be generated either by EPA itself, LDEQ or other interested parties.

Conoco Inc. **Comment: 014/0063** **Response: 006/0055**

EPA should specifically acknowledge that future ambient water quality information will result in delisting of POCs and rescinding of TMDLs.

Conoco Inc. **Comment: 014/0064** **Response: 004/0123**

Eliminate sampling and testing of total metals—dissolved only

The TMDL endpoints are for dissolved concentrations in the water column. All TMDL water quality testing should be performed on a dissolved basis.

Conoco Inc. **Comment: 014/0065** **Response: 004/0124**

Eliminate requirement for LDEQ to sample and monitor sediments.

The TMDL endpoints are for dissolved concentrations in the water column. TMDL monitoring of sediment quality should be eliminated unless and until scientific evidence of sediment induced impairment of segment water quality can be demonstrated. Further study of this linkage is certainly warranted.

Conoco Inc. **Comment: 014/0066** **Response: 004/0125**

Facilities should be allowed to report loadings on a "net" basis for POCs with non-point source load allocations.

Many facilities in the Calcasieu Estuary utilize water from the segments for process and cooling water. "Background" loads in segment water—including upstream, tributary, atmospheric, and non-point source loads—are therefore present in this water at the point it is withdrawn and returned to the segment. EPA should expressly allow for dischargers to subtract all "background" contributions from the facility's measured final discharge load.

Conoco Inc. **Comment: 014/0067** **Response: 004/0126**

Facilities should be allowed to report loadings on a statistically valid, scientifically reasonable, averaged basis.

TMDL WLAs should be implemented as limitations on a statistically based measure of mean loadings. For human health criteria POCs, an annual mean loading is appropriate. For chronic aquatic criteria, a monthly average is appropriate.

Firestone Polymers **Comment: 015/0001** **Response: 015/0001**

Firestone is concerned with the methodology SAIC used to identify pollutants of concern (POC) for each segment of the estuary. The attached comments summarize most of our concerns, however, Firestone wants to emphasize the following. SAIC used screening criteria to identify POCs for final TMDL determination. This is not appropriate. In several cases for Bayou d'Inde, a substance was not detected in any media of concern or it was not detected at concentrations exceeding Louisiana standards, yet based on the screening criteria, the substance was retained as a POC. Furthermore, several substances were detected at extremely low frequency and their presence is not statistically significant. Based on this lack of scientific foundation, Firestone requests that EPA rely on more rigorous, scientific, and risk- based criteria for including substances in the TMDL rather than the simple screening

criteria that were used. Alternatively, there is insufficient analytical justification provided or demonstrated for the inclusion of the POCs.

Firestone Polymers **Comment: 015/0002** **Response: 015/0002**

In the TMDL, the Firestone facility has been assigned waste load allocations and/or testing requirements for the following compounds: hexachlorobutadiene, PCBs, tetrachloroethane, bromoform, copper, hexachlorobenzene and nickel. Firestone has no knowledge of these substances entering our facility in our raw materials with the exception of nickel. Furthermore, Firestone has no knowledge of the significant presence of these substances at our facility, with the exception of nickel and copper. After consulting with our scientists, we feel confident that there are no mechanisms for forming the listed halogenated organic chemicals in all manufacturing processes used at the facility. The only copper at the facility is a very minor amount of the metallic form in piping and equipment. Firestone incorporates by reference all monitoring data and reports and NPDES/LPDES permit submittals on file with EPA and the Louisiana State Department of Environmental Quality. Therefore, we request that TMDLs and testing requirements for Firestone be removed for the following chemicals: hexachlorobutadiene, PCBs, tetrachloroethane, bromoform, copper and hexachlorobenzene.

Firestone Polymers **Comment: 015/0003** **Response: 015/0003**

The TMDL requires that all testing be conducted using “clean techniques”. It is Firestone’s understanding that this analytical technique is available from only two laboratories nationwide. Industry should not be held to a higher standard than EPA with respect to its analysis. Thus, Firestone requests that for any scientifically valid TMDLs, the required analysis be consistent with Clean Water Act methodologies.

Firestone Polymers **Comment: 015/0004** **Response: 015/0004**

The waste load allocations for the TMDLs are proportioned based on volumetric flow rates from the facilities. The amount of a pollutant of concern (POC) discharged by a facility usually is totally unrelated to the volume of water discharged from the facility. Therefore, each allocation should be proportioned based on mass flow rate of each POC. Moreover, since this method would result in the same percent reduction of POCs for all of the contributing facilities, this is the only representative and equitable approach. Otherwise, those facilities that discharge large amounts of water and not necessarily a large amount of POC would get a disproportionate allocation of a TMDL. Thus, Firestone requests that each TMDL allocation be based on mass flow rate for each substance.

Firestone Polymers **Comment: 015/0005** **Response: 015/0005**

The volumetric flow rates used to set the TMDLs for Firestone’s waste allocation are not accurate. The last year that Firestone recorded storm water flow rates for every event during the entire year was 1998. Using the 1998 storm water flow data for outfalls 003 and 004 along with 2001 effluent data for outfall 001, the following flow rates are obtained (See Table 1 in Hard Copy): Thus, Firestone requests that all calculations using facility flow rates from Firestone Polymers be recalculated using the more current volumes.

Firestone Polymers **Comment: 015/0006** **Response: 015/0006**

The “lower reaches of Bayou D’Inde” (Segment 030901) should be divided into two segments. POC exceedances, hydrology, watersheds and industrial discharge flows in the lower reaches of Bayou D’Inde vary considerably between the upper and lower half. The water body should be divided into two segments at Hwy 108 or where Maple Fork joins Bayou D’Inde. The lower portion of this segment contains the vast majority of exceedances, the largest discharger by far and different hydrology where Bayou D’Inde fans into a marsh as it joins Calcasieu River. The Draft TMDL report shows that 85% of the average industrial discharge is in the lower Bayou D’Inde. Thus, Firestone requests that EPA divide “the lower reaches of Bayou d’Inde” into two segments (Middle Bayou d’Inde and Lower Bayou d’Inde) at the Hwy 108 bridge.

Firestone Polymers **Comment: 015/0007** **Response: 004/0128**

The thirty (30) day time period allotted for comments is inadequate and not feasible for Firestone to review and evaluate the draft study and make complete comments due to the volume of information required to be reviewed in an evaluation of the draft study and due to the technical complexities of the issues. Thus, Firestone requests an additional 90 days to review and provide comments to the TMDL. In addition, because of the large amount of issues and comments on the draft TMDL, Firestone requests that any revised TMDL be issued in draft form again for additional public comment before becoming final.

Firestone Polymers **Comment: 015/0008** **Response: 004/0033**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" copper.

LDEQ (in a letter to EPA dated August 20,2001) provided information for delisting of copper from the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901).

Firestone Polymers **Comment: 015/0009** **Response: 004/0034**

EPA has not addressed information submitted by LDEQ which provides a basis for "delisting" several Court-Ordered "categorical" impairments.

LDEQ (in a letter to EPA dated October 10,2001) provided information clarifying the listings of "Priority organics" and "Non-priority organics" for the Calcasieu Ship Channel (030301), Bayou Verdine (030304), and Bayou D'Inde (030901), and other segments. Based on this information LDEQ stated that the only POCs which are suspected cause of waterbody impairment are:

Hexachlorobenzene, Hexachlorobutadiene, and PCBs for Bayou D'Inde (only).

LDEQ stated that no other use impairments for organic POCs have been documented.

LDEQ (In the same letter to EPA dated October 10,2001) provided information clarifying the listings of "Other inorganics" for Bayou D'Inde (030901). LDEQ stated that this listing was for general information purposes and not a listing for a specific parameter.

Firestone Polymers **Comment: 015/0010** **Response: 004/0035**

Notwithstanding the above, EPA has sought to select POCs for these "categorical" impairments by evaluating information from several studies of Calcasieu Estuary area which were not designed to support TMDL determinations.

In the Draft TMDL EPA states that data from the following seven reports were reviewed and evaluated to identify POCs:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou D'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of the Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

In each case these reports were the result of limited water and sediment quality investigations that were intended to focus on specific legacy contamination issues. These studies have a number of limitations which render them unsuitable for use in identifying TMDL POCs.

Firestone Polymers **Comment: 015/0011** **Response: 004/0035**

The sampling schemes—locations, depths, compositing, etc—of these studies were primarily designed to evaluate known or suspected areas of contamination (i.e., "hot spots") within segments. The studies were not designed to provide, and do not provide, a statistically representative set of data for the respective segments. Absent a statistically valid sampling scheme (e.g. random sampling or grid sampling), the findings of POCs above reference levels is only indicative of localized contamination in the specific areas of investigation.

Firestone Polymers **Comment: 015/0012** **Response: 004/0037**

EPA should eliminate selection of POCs solely based on localized "hot spot" sediment data.

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)
Calcium, Bayou Verdine (030306)

Firestone Polymers **Comment: 015/0013** **Response: 004/0038**
The LDEQ information referred to under 2a) above—combined with the absence of data showing presence in segment water or sediment above reference levels—should be sufficient grounds to delist the following POCs:

Phenol, Bayou Verdine (030306)
Bromoform, Bayou D'Inde (030901)
1,1,2,2 Tetrachloroethane, Bayou D'Inde (030901)

Firestone Polymers **Comment: 015/0014** **Response: 002/0003**
Water and sediment quality data in these studies were not developed using consistent Data Quality Objectives (DQOs) appropriate for a TMDL process. The reference levels for POCs requires very low detection limits. There is no indication that the above studies used appropriate field and laboratory techniques necessary to assure the quality of these results, particularly a reasonable minimization of false positives at the reference level.

Firestone Polymers **Comment: 015/0015** **Response: 004/0040**
EPA's Draft TMDL does not address whether the above studies found the POCs under conditions consistent with application of the reference level—such as those relevant to POC fate, mobility, chemical form/stability, bioavailability, and biotoxicity.

Firestone Polymers **Comment: 015/0016** **Response: 004/0041**
Water quality references levels are for dissolved concentrations and EPA should be evaluating only results for dissolved concentrations of POCs.

Firestone Polymers **Comment: 015/0017** **Response: 004/0042**
Reference levels for marine conditions should be applied to marine waters and reference levels for fresh water should be applied to samples from fresh conditions.

Firestone Polymers **Comment: 015/0018** **Response: 004/0043**
Reference levels for fresh water must adjusted for hardness.

Firestone Polymers **Comment: 015/0019** **Response: 003/0004**
Other factors affecting the application of water quality reference levels should be considered (e.g. using techniques similar to a Water Effects Ratio study.)

Firestone Polymers **Comment: 015/0020** **Response: 004/0045**
Reference levels that are not appropriate to local biota should no be used.

Firestone Polymers **Comment: 015/0021** **Response: 004/0046**
Sediment reference levels should be adjusted based on sediment mineral type, soil type, AVS/SEM ratio, and other relevant characteristics.

Firestone Polymers **Comment: 015/0022** **Response: 004/0047**
Selection of POCs is not appropriate absent a careful evaluation of specific water and sediment conditions under which the reference levels can be properly applied.

Firestone Polymers **Comment: 015/0023** **Response: 004/0052**
EPA has not provided the public with adequate notice of the selection of specific POCs to allow for comment on the "listing" process or the opportunity to provide additional sampling and evaluations.

Interested parties in the Lake Charles area have demonstrated willingness to undertake detailed sampling studies—e.g., using "clean techniques"—for specific POCs that had previously been identified in the Court-Ordered List (e.g. copper). Interested parties in the Lake Charles area would like to have an opportunity to provide additional data on each of the 19 selected POCs, prior to EPA final determination of a TMDL.

Firestone Polymers **Comment: 015/0024** **Response: 004/0053**

EPA's "flagging method" for identifying POCs from previous investigation data is not appropriate for a final TMDL determination.

As explained on page ES-1 of the Draft TMDL, EPA has used a simple screening method to select POCs:

Pollutants with more than one exceedance of chronic water quality criteria, or with the mean of detected values exceeding human health criteria; or

Pollutants with sediment concentrations exceeding ESGs or ERMs for 10% or more of samples.

This selection scheme is commonly used as a "screening" technique for identifying POCs which will then be the subject of a more rigorous, statistically robust investigation. The results of this subsequent phase of investigation are then used for decision-making purposes (i.e. formal risk assessment, remedial decisions, treatment decisions, etc.). The use of a screening technique for making final selection of POCs is wholly inappropriate and has no scientific basis. It is also inconsistent with established EPA guidance and nationally recognized methodologies for pollution or contamination management.

The NRC Report states: "Statistical inference procedures must be used on the sample data to test hypotheses about whether the actual condition of the waterbody meets the criterion."

Firestone Polymers **Comment: 015/0026** **Response: 004/0001**

EPA has not made use of statistical techniques for evaluating the full range of results for POCs but rather has arbitrarily chosen to evaluate only exceedances.

Firestone Polymers **Comment: 015/0027** **Response: 004/0001**

A selection method based on finding "more than one exceedance" is arbitrary and has no sound scientific or statistical basis.

Firestone Polymers **Comment: 015/0028** **Response: 004/0057**

To evaluate a set of results for comparison with a reference level good scientific, statistical practice requires an appropriate estimate of central tendency—appropriate to the type distribution—and use of this as the benchmark for comparison. (Nonparametric statistical techniques may be appropriate for certain data distributions.)

Firestone Polymers **Comment: 015/0029** **Response: 004/0058**

Good scientific practice also requires that nondetect values be assigned a surrogate value consistent with the data quality and general nature of the evaluation. Calculation of the "mean of detected values" is not appropriate since it biases the evaluation.

Firestone Polymers **Comment: 015/0030** **Response: 004/0059**

EPA's use of sediment results and sediment reference levels is not appropriate to selection of POCs for a TMDL determination.

Recent investigations suggest that most sediment POC contamination, where it does exist, is the result of past, localized, historic events or practices. Given the regional sedimentation conditions in the estuary, contaminated sediments are probably undergoing active burial.

Firestone Polymers **Comment: 015/0031** **Response: 004/0060**

There is no information presented on whether the investigation sediment data reflects conditions of sediments currently exposed to water column. Sediment quality data are not correlated to any deposition dating information. It is likely that most areas of contaminated sediments are buried under more recently deposited sediments and not exposed to the water column. Covers as thin as a fraction of an inch can provide an effective barrier to sediment contamination mobility.

Firestone Polymers **Comment: 015/0032** **Response: 004/0061**

Even assuming sediment results are indicative of conditions at the water column interface, EPA does not present any scientific evidence that sediment conditions are substantially affecting water quality. Given that the TMDL endpoints are water quality criteria for dissolved concentrations, EPA should present a detailed justification—based on scientifically valid, statistically representative, segment-specific data—for using sediment conditions as a basis for inferring the need for a water column POCs and TMDLs.

Firestone Polymers **Comment: 015/0033** **Response: 004/0062**

ESGs and ERMs are not promulgated standards for protection of water quality and therefore should not be used as sole references for the selection of POCs. The EPA should remove the following POCs since sediment results were the only basis for their selection:

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

4,4'-DDT, Bayou Verdine (030306)

Methoxychlor, Bayou Verdine (030306)

Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Bayou Verdine (030306)

Zinc, Bayou Verdine (030306)

Calcium, Bayou Verdine (030306)

Firestone Polymers **Comment: 015/0034** **Response: 004/0063**

The NRC Report specifically recommends movement of waterbodies from a preliminary list to an action list on the basis of narrative criteria.

Firestone Polymers **Comment: 015/0035** **Response: 004/0064**

ESGs and ERMs are not promulgated standards for protection of water quality and absent a rigorous scientific justification should not be used as supporting references for the selection of POCs. EPA should eliminate consideration of sediment results in the determination of whether the following compounds warrant selection as POCs:

Mercury, Bayou D'Inde (030901)

Mercury, Calcasieu Ship Channel (030301)

Benzo(a)anthracene and Benzo(a)pyrene, Calcasieu Ship Channel (030301)

Firestone Polymers **Comment: 015/0036** **Response: 004/0109**

EPA should provide water quality endpoints based on dissolved concentrations of POCs.

LDEQ's water quality standards are specifically promulgated as dissolved standards since chronic aquatic toxicity and human health criteria are both based on uptake of dissolved fractions. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether dissolved concentrations of proposed POCs exceed appropriate reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, should be provided on a dissolved basis.

Firestone Polymers **Comment: 015/0037** **Response: 004/0110**

EPA should provide freshwater quality endpoints for nickel and copper in fresh portions of segments.

LDEQ requires that freshwater chronic aquatic toxicity criteria be applied for nickel (a POC in Bayou Verdine and Bayou D'Inde) and copper (a POC in the Calcasieu Ship Channel and Bayou D'Inde) and be adjusted for hardness. As noted in Comment I.3.e) above, EPA does not provide an evaluation of whether nickel and copper exceed appropriate freshwater, hardness adjusted reference levels. Determinations of impairment, calculations of the TMDL, as well as implementation requirements, for nickel and copper should take into account fresh conditions and hardness.

Firestone Polymers **Comment: 015/0038** **Response: 004/0111**

EPA should evaluate stream specific conditions that may result in adjusting endpoints. (Table 2. Summary of POCs)

Other factors can affect water quality criteria for toxic POCs and chronic aquatic toxicity and human health criteria that are applicable to conditions in one geographic area may not be applicable to the Calcasieu Estuary. Segment specific Water Effects Ratio studies should be undertaken to evaluate if "generic" endpoints for POCs are applicable.

Firestone Polymers **Comment: 015/0039** **Response: 004/0113**

EPA should provide detailed references, data sets, and copies of actual calculations for the flow estimates.

Firestone Polymers **Comment: 015/0040** **Response: 004/0113**

The low flow estimate for the Calcasieu Ship Channel—Salt Water Barrier to Moss appears to be in error.

The EPA low flow value appears to be the lowest daily flow for the Calcasieu River at the Kinder gauging station for 1999 (Ref. 1). It is not a 7Q10 flow. In addition, this station is above the confluence with the West Fork and Houston River. Ref 2 provides a factor of 1.86 for adjusting 7Q10 flow at Kinder to the Saltwater Barrier. If 258 cfs is used as the low flow at Kinder, an appropriate estimate for low flow at the Saltwater Barrier would be 479 cfs.

Alternatively Ref. 2 provides a 7Q10 flow estimate for the Calcasieu River at the Saltwater Barrier of 375 cfs.

However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided an estimate of the critical flow based on tide cycle of 1,917 cfs at Louisiana Pigment (Ref. 3)

The low flow estimate for Bayou D'Inde appears to be in error.

Ref. 4 provides a 7Q10 estimate of 7.6 cfs (4.9 mgd). However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. LDEQ has provided estimates of the critical flow based on tide cycle of 34.4 and 31.1 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). Just above the PPG canal (PPG Outfall No. 001) near the Bayou D'Inde critical flow based on tide-cycle is reported to be 121 cfs (Ref 7). (Table 3. Summary of Segment Flow Estimates)

The estimates for the low flows on the remaining segments also appear to be in error.

Ref. 4 provides a 7Q10 estimate of 1.4 cfs (0.9 mgd) for Bayou Verdine. However, due to the fact that this segment is tidally influenced, a critical flow based on tide cycle is more appropriate than an estimate of 7Q10. EPA should develop critical flow estimates based on tide cycle for the remaining segments.

The estimates for mean flows for the segments appear to be in error.

The 1999 mean flow at Kinder was 2,690 cfs (Ref. 1) Applying the area factor of 1.86 (Ref. 2) a mean flow estimate is 4,994 cfs. EPA should develop mean flow estimates based appropriate data for the remaining segments.

The estimate for harmonic mean flow for the Calcasieu Ship Channel appears to be in error.

LDEQ has provided an estimates of the harmonic mean flow at Louisiana Pigment of 5,750 cfs (Ref. 3).

The estimate for harmonic mean flow for Bayou D'Inde appears to be in error.

LDEQ has provided estimates of the harmonic mean flow of 103.3 and 93.4 cfs at Firestone and Westlake Polymers (Refs. 5 and 6). At PPG near the mouth of Bayou D'Inde the harmonic mean flow is reported to be 363 cfs (Ref 7)

The estimates for harmonic mean flows on the remaining segments also appear to be in error.

EPA should develop estimates of harmonic mean flow on the remaining segments based appropriate data.

Firestone Polymers **Comment: 015/0047** **Response: 004/0028**

EPA's information on the location of several major point-source discharge outfalls contain numerous significant errors.

Table 4 shows these errors include:

Concoco—Primary outfalls have been moved to the Calcasieu Ship Channel (Segment 030301).

Condea Vista—Permit being finalized to move primary outflows to the Calcasieu Ship Channel (Segment 030301).

Citgo—Outfalls for CitCon portion of operations (001, 002, 012) are to Bayou D'Inde (Segment 030901).

Lyondell—Stormwater Outfalls 025, 026, and 032 are to Bayou Verdine (Segment 030306).

PPG---Outfall 002 to Calcasieu Ship Channel (Segment 030301) was not included

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary outfalls to ensure that they are located on the proper segment.

Firestone Polymers **Comment: 015/0047** **Response: 004/0026**

EPA's estimates of mean flow for most major point-source discharge outfalls contain numerous significant errors.

Table 4 shows these errors include:

Citgo Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 5.

Lyondell Calcasieu Ship Channel (Segment 030301) Discharge—off by a Factor of 4.

PPG Bayou D'Inde (Segment 030901) Discharge—off by a Factor of 10.

Since these errors reflect only a preliminary and partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of mean flows for each segment.

Firestone Polymers **Comment: 015/0049** **Response: 004/0030**

EPA's estimates of average maximum flow for most major point-source discharge outfalls contain numerous significant errors.

EPA's estimates of maximum flow contain similar errors. Since these errors reflect only a partial survey of known major dischargers, EPA should conduct a complete field survey of all Calcasieu Estuary dischargers to ensure that they are developing appropriate estimates of maximum flows for each segment.

Firestone Polymers **Comment: 015/0050** **Response: 004/0031**

EPA's should determine discharge maximum flows for use in chronic toxicity TDMLs using a statistically valid approach.

EPA's estimate of average monthly maximum discharge flow is arbitrary. A statistically valid representation of maximum flow for an appropriate return period should be determine. This is particularly important since a significant portion of some facilities' loads may be associated with stormwater discharges.

Firestone Polymers **Comment: 015/0051** **Response: 004/0025**

EPA needs to correct errors in the segment flow.

Firestone Polymers **Comment: 015/0052** **Response: 004/0026**

EPA needs to correct errors in facility outfall flow.

Firestone Polymers **Comment: 015/0053** **Response: 005/0053**

EPA needs to determine if certain POC point source loadings are associated with point source stormwater outfalls and develop statistically valid segment flow estimates.

For some POCs, significant point source loads may be attributable to stormwater outfalls. In these cases, use of low flows for dilution are not reasonable since facility discharges of the POC would occur during periods when significantly higher stream flows would be present. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate segment flow estimates for stormwater events.

Firestone Polymers **Comment: 015/0054** **Response: 004/0027**

EPA needs to substitute statistically valid estimates of facility flows for all stormwater driven TMDL mass balance calculations.

EPA's method for estimating facility maximum discharge (for use with chronic toxicity POC TMDLs) is arbitrary and does not reflect reasonable, statistically-based estimates. Maximum flows are associated with stormwater discharges. EPA should undertake a detailed evaluation of which POCs are stormwater driven and of appropriate facility flow estimates for stormwater events.

Firestone Polymers **Comment: 015/0055** **Response: 005/0055**

Due the errors in locating discharge outfalls and estimating point-source flows EPA has not included allocations for all potential point sources.

Firestone Polymers **Comment: 015/0056** **Response: 005/0056**

PAHs may be present in petroleum refinery point-source discharges. EPA should include wasteload allocations for PAHs for all petroleum refineries.

Benzo(a)anthracene, Benzo(a)pyrene, and Chrysene are reported to be common constituents in typical refinery effluents. (EPA, Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing, and Combustion, National Risk Laboratory, September 2001.) Allocations of PAHs should be provided to:

Conoco—Calcasieu Ship Channel (Segment 030301)

Citgo—Calcasieu Ship Channel (Segment 030301)

Citgo—Bayou D'Inde (Segment 030901)

Firestone Polymers **Comment: 015/0057** **Response: 005/0057**

Given the indeterminate level of POCs in point-source stormwater, and very low wasteload allocations for these POCs, EPA should include wasteload allocations for POCs for all major facilities.

No determinations have been made on the presence of POCs in stormwater at the low levels indicated in the TMDL. Therefore, all major facilities with point-source discharges of stormwater should receive an allocation of each POC.

Firestone Polymers **Comment: 015/0058** **Response: 004/0121**

EPA should provide a minimum of three years for facilities to come into compliance with monitoring requirements.

There is currently a significant lack of capacity for obtaining “clean techniques” laboratory analyses. There are currently only two LDEQ certified laboratories which are offering “clean techniques” and both are out of state (Madison, Wisconsin and Seattle, Washington).

Firestone Polymers **Comment: 015/0059** **Response: 004/0122**

EPA should not impose a deadline for facilities to come into compliance with the WLA until sufficient time has been provided for further study of segment hydrology and water quality, the applicability of “generic” endpoints, and facility flows.

Given the absence of reasonable quality data and valid statistical evaluation for the selection of POCs and estimates of segment and facility flows, EPA should allow ample time for these efforts to be undertaken. EPA should expressly provide for a timely re-evaluation of each POC selection and TMDL determination upon submittal of a new information.

Firestone Polymers **Comment: 015/0060** **Response: 004/0127**

Given the many identified limitations of the science in this TMDL process, all proposed toxic TMDLs should be clearly qualified by EPA as "provisional". EPA should include a section specifically discussing the limitations of the science in establishing toxic TMDLs for the Calcasieu Estuary and should clearly identify that such TMDLs are provisional. In this section EPA should set forth a process for prompt review and revision of the TMDL PA upon obtaining new information. Such information could be generated either by EPA itself, LDEQ or other interested parties.

Firestone Polymers **Comment: 015/0061** **Response: 006/0055**

EPA should specifically acknowledge that future ambient water quality information will result in delisting of POCs and rescinding of TMDLs.

Firestone Polymers **Comment: 015/0062** **Response: 004/0123**

Eliminate sampling and testing of total metals—dissolved only

The TMDL endpoints are for dissolved concentrations in the water column. All TMDL water quality testing should be performed on a dissolved basis.

Firestone Polymers **Comment: 015/0063** **Response: 004/0124**

Eliminate requirement for LDEQ to sample and monitor sediments.

The TMDL endpoints are for dissolved concentrations in the water column. TMDL monitoring of sediment quality should be eliminated unless and until scientific evidence of sediment induced impairment of segment water quality can be demonstrated. Further study of this linkage is certainly warranted.

Firestone Polymers **Comment: 015/0064** **Response: 004/0125**

Facilities should be allowed to report loadings on a “net” basis for POCs with non-point source load allocations.

Many facilities in the Calcasieu Estuary utilize water from the segments for process and cooling water. “Background” loads in segment water—including upstream, tributary, atmospheric, and non-point source loads—are therefore present in this water at the point it is withdrawn and returned to the segment. EPA should expressly allow for dischargers to subtract all “background” contributions from the facility’s measured final discharge load.

PPG Industries, Inc. **Comment: 016/0001** **Response: 004/0128**

PPG Industries, Inc. requests that EPA extend the period for public comment on the proposed TMDLs for the following waterbody segments of the Calcasieu River basin: 030301, Calcasieu River & Ship Channel --Saltwater

Barrier to Moss Lake (includes Coon Island and Clooney Island Loops); 030306, Bayou Verdine, and 030901, Bayou D'Inde. The TMDLs were proposed in 67 Federal Register 15196, March 31, 2002. The notice indicated that the deadline for public comment is April 29, 2002. PPG requests that this deadline be extended by 60 days, until June 28, 2002, because the current 30-day public comment period is inadequate to allow the regulated community sufficient time to review this proposal.

PPG Industries, Inc. **Comment: 016/0002** **Response: 016/0002**

The proposal actually referenced a draft TMDL report available on the EPA Region 6 website, but the appendices containing the supporting data were not available on the website. While we have ordered these, we have not yet received the supporting data. In addition, our preliminary review indicates that there appear to be factual errors omissions in the data upon which the proposal is based as well as potential legal errors in the methodology for determining TMDLs.

PPG Industries, Inc. **Comment: 016/0003** **Response: 016/0003**

In addition, we have concerns that EPA is proposing TMDLs for pollutants even where data demonstrate that the state numeric water quality standards are not being exceeded.

PPG Industries, Inc. **Comment: 016/0004** **Response: 004/0128**

The proposed TMDLs, if implemented, would have significant economic impact on PPG. EPA's rules provide for "a minimum" of a 30 day public comment period. It is our understanding that EPA is not subject to a current court imposed deadline to finalize these TMDLs. Further, in similar circumstances in other parts of the country, EPA has extended the public comment deadline (or due to extensive comments, has revised and reproposed TMDLs.) Due to the complex issues involved and the significant potential consequences of adoption of the TMDLs, we believe that more than a minimum amount of time is justified.

PPG Industries, Inc. **Comment: 016/0005** **Response: 002/0035**

It was not appropriate to establish a TMDL/WLA for nickel and mercury when these were not on the state's 303(d) list.

EPA has proposed TMDLs and WLAs for Bayou D'Inde for two pollutants that were not on the 1999 303(d) list. See DRAFT TMDL for Toxics for The Calcasieu Estuary, SAIC December 2001 ("Draft TMDL Report"), p. 3, Table 1. These two pollutants are mercury and nickel. Because these two parameters were not on the 303(d) list, EPA is not required by law to develop TMDLs for these and should not do so. Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d)(1) provides:

> Each State shall identify those waters or parts thereof within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters.
>
> Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load for those pollutants which the Administrator identifies under section 304(a)(2) as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. Pollutants identified under section 304(a)(2), as identified in section 303(d)(1)(C), are those pollutants specifically identified in a state's water quality standards.

PPG Industries, Inc. **Comment: 016/0006** **Response: 004/0002**

Further, the State of Louisiana has primacy over whether to add waters to the 303(d) list and the state should be given the opportunity to review such additional data to determine whether the 303(d) list should be amended to include these or whether the data show that no impairment due to these pollutants exists. By proposing TMDLs for parameters not on the state 303(d) list, EPA has usurped the state authority.

PPG Industries, Inc. **Comment: 016/0007** **Response: 004/0050**

Other Inorganics - Bayou d'Inde (030901) was listed on the 303(d) list for "other inorganics". LDEQ discussed the meaning of this term as follows:

Other Inorganics

Subsegment 030901 – Bayou D'Inde – Headwaters to Calcasieu River

The term "other inorganics" was intended as a generic term for those non-metallic inorganic compounds that may occur in the water from brine discharges during oil and gas activities. No water quality sample was collected; therefore, no quantitative assessment was made. Non-metallic inorganic water quality parameters in brine discharges include chlorides, sulfates, total dissolved solids and salinity.

> Since Bayou D'Inde is a natural estuarine waterbody frequently influenced by high salinity from the Gulf of Mexico, no water quality criteria for these parameters are set for the bayou in the Louisiana Water Quality Standards. The listing for "other inorganics" in subsegment 030901 was for general informational purposes and not a listing for impairment of water use by any specific parameter. (Emphasis added.)

Thus, it is clear that the term "other inorganics" does not include mercury or nickel. For this reason, EPA does not have authority under the Clean Water Act or the court approved Consent Agreement to establish TMDLs for mercury and nickel for Bayou D'Inde.

PPG Industries, Inc. **Comment: 016/0008** **Response: 004/0001**

EPA should not establish TMDLs/WLAs for pollutants where there is no evidence of impairment.

Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d), allows the state (or EPA in the case where the state has failed to act) to establish TMDLs only where technology based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters. In short, TMDLs are authorized only where the state water quality standards are not being met because technology based controls are insufficient. EPA is simply not authorized to establish a TMDL for a pollutant when state water quality criteria are already being achieved.

PPG Industries, Inc. **Comment: 016/0009** **Response: 004/0005**

There is no evidence of water quality criteria exceedances for a great number of pollutants for which EPA has proposed TMDLs for the Calcasieu Estuary. Where EPA's investigation of a pollutant shows that the state water quality standard for that pollutant is not being exceeded, then EPA must delist that waterbody for that pollutant on the 303(d) list. Indeed, EPA clearly has proposed to delist 20 waterbody/pollutant combinations in the Calcasieu Estuary and Ouachita River Basin for exactly that reason. See 67 Fed. Reg. 15176, March 29, 2002.

PPG Industries, Inc. **Comment: 016/0010** **Response: 004/0034**

The Louisiana Department of Environmental Quality has requested that Bayou d'Inde be delisted for all pollutants except HCB, HCBD, and PCBs. Louisiana LDEQ has provided data to EPA indicating that it believes that delisting is supported for most of the pollutants currently on the 303(d) list. The October 10, 2001 letter from the Louisiana Department of Environmental Quality to EPA Region 6, attached as Exhibit 1, made these recommendations for what pollutants should be delisted and which should be retained:

> 1) Delist priority organics as a suspected cause [of impairment] for subsegments 030301, 030302, 030303, 030304, 030305, 030306, 030401, and 030402. Subsegment 03901 will remain on the list [303(d) list] for priority organics because of a fish consumption advisory for HCB, HCBD and PCBs.
>
> 2) Delist non-priority organics as a suspected cause from subsegments 030302, 030306, and 030901[Bayou d'Inde].
>
> 3) Delist other inorganics as a suspected cause from subsegment 030901[Bayou d'Inde].

For these reasons, EPA should have delisted bromoform, tetrachloroethane and copper from the 303(d) list for Bayou d'Inde (and as noted above, mercury and nickel have never been on the list, so TMDLs should not be developed).

PPG Industries, Inc. **Comment: 016/0011** **Response: 003/0002**

EPA's own data indicate that bromoform and tetrachloroethane do not exceed the standards.

Further, as discussed in Section II.B. of these comments, EPA had data clearly demonstrating that the state human health water quality criteria for bromoform and tetrachloroethane are met and that there is no reasonable potential for these criteria to be exceeded. Thus, EPA should delist these two compounds for Bayou d'Inde.

PPG Industries, Inc. **Comment: 016/0012** **Response: 002/0003**

EPA's data are inadequate to show any exceedance of the copper, mercury or nickel criteria and there is evidence demonstrating that there is no exceedance.

On August 20, 2001, LDEQ provided "clean techniques" sampling data to EPA demonstrating that there were no exceedances of the aquatic copper criteria in Bayou d'Inde, Bayou Verdine, and the Calcasieu Ship Channel.

However, EPA's contractor apparently did not receive or did not consider this data for these waterbodies although similar data was used as a basis for delisting copper in other waterbodies in the Calcasieu Basin and other Louisiana waterbodies. The data provided by LDEQ to EPA in August 2001 was developed from a report commissioned by PPG titled "A Final Report for Trace Metals 'Clean Technique' Sampling and Laboratory Analysis, CK Associates, Inc., March 2001." A copy of this report is attached as Exhibit 3.

PPG Industries, Inc. **Comment: 016/0013** **Response: 002/0003**

EPA proposed TMDLs/WLAs for copper, mercury and nickel were based upon data collected and analyzed without use of "clean techniques." As noted above, data collected using clean techniques was already been provided to EPA by LDEQ in August 2001, but apparently was not considered in the study. This data showed that there is no exceedance of the aquatic copper criteria and that Bayou d'Inde should thus be delisted for copper. The "dirty" data used by the EPA contractor showed nickel detected above the criteria in less than 10% of the samples. In light of this data , Louisiana Water Quality Standards indicate that clean techniques or ultra-clean techniques must be used when other data indicate that a criteria may be exceeded. LAC 33:IX.1113.C.6.f provides:

> f. The use of clean or ultra-clean techniques may be required to definitively assess ambient levels of some pollutants (e.g., EPA method 1669 for metals) or to assess such pollutants when numeric or narrative water quality standards are not being attained. Clean and ultra-clean techniques are defined in LAC 33:IX.1105. (Emphasis added.)

The relevant definitions of "clean" and "ultra-clean" in LAC 33:IX.1105 provide:

> Clean Techniques—those requirements (or practices for sample collection and handling) necessary to produce reliable analytical data in the microgram per liter (µg/L) or part per billion (ppb) range.
>
> Ultra-Clean Techniques—those requirements or practices necessary to produce reliable analytical data in the nanogram per liter (ng/L) or part per trillion (ppt) range.

The aquatic criteria for copper and nickel are in the part per billion range while the aquatic criteria for mercury are in the part per trillion range. Thus, the data used by the EPA contractor to form the basis for the TMDLs for these pollutants are simply not considered to be reliable data to establish standards in these part per billion and part per trillion ranges.

PPG Industries, Inc. **Comment: 016/0015** **Response: 004/0012**

EPA's contractor should have collected additional data for these parameters using clean or ultra-clean techniques as specified by the LWQS because such data is "necessary to produce reliable analytical data" in the ranges established by the standards and the TMDLs. The failure to do so is inexplicable given that only clean or ultra-clean techniques data is considered by the scientific community (and the LWQS) to be the type of data that will support an actual waste load allocation and the attendant economic burdens that will be imposed on discharging entities.

PPG Industries, Inc. **Comment: 016/0016** **Response: 004/0014**

With respect to mercury, EPA did not use ultra-clean techniques. Further, while EPA apparently detected mercury in the ambient water, it has not yet identified any exceedance of the chronic aquatic protection standard because it did not perform any fish testing. As will be discussed in Section II.B., however, LDEQ's aquatic protection criteria requires fish testing for implementation-LAC 33:IX.1113 Table 3 note 11. PPG is presenting with these comments a summary of a study of mercury levels in fish from the Calcasieu Estuary waterbodies performed for PPG by their contractors over a period of twelve years. This study demonstrates that there is no exceedance of the state aquatic protection criteria. Further, EPA data developed in Phase II of the Calcasieu Estuary Superfund Study support PPG's conclusion that there is no exceedance of the aquatic protection criteria. Finally, there is no seafood consumption advisory for mercury in the estuary. Thus, the TMDL for mercury should be withdrawn.

PPG Industries, Inc. **Comment: 016/0017** **Response: 004/0008**

Although Louisiana LDEQ indicated that HCB, HCBD and PCBs should remain on the 303(d) list, this recommendation was solely due to the existence of a fish consumption advisory from the Louisiana Department of Health and Hospitals (LDHH). As will be discussed in Section II.B. of these comments, there is no current evidence of impairment of Bayou d'Inde for these parameters even though the LDHH is protectively continuing the advisory. In fact, PCBs are banned from manufacture and most uses under the federal Toxic Substances Control Act, so such regulations provide reasonable assurance that this pollutant will not be an ongoing issue. TMDLs, which address current discharges, are simply unwarranted, as current discharges have no impact on water quality with respect to these pollutants.

PPG Industries, Inc. **Comment: 016/0018** **Response: 004/0007**

EPA's contractor has proposed TMDLs (and corresponding WLAs) for several of these pollutants based on the fact that the detection limit for such pollutants is lower than the relevant water quality standard. This is an inappropriate interpretation of the Clean Water Act. TMDLs are warranted only when there is evidence that a discharge has a reasonable potential to contribute to exceedance of a standard. It is not appropriate for EPA to adopt a TMDL simply because it presumes that substances do exist in the water and presumes further that these will be at levels above the standards. EPA should not presume impairment without scientific basis. EPA should withdraw TMDL/WLAs where there is no detection of such pollutants using reliable data (such as clean and ultra-clean data where warranted). EPA should rely instead on 40 CFR 122.44(d)(1)(i) and (vi)(A) and (B) which require the permitting authority to impose water quality based effluent limits where the discharges from an individual facility have "reasonable potential" to exceed a state water quality standard. Under these rules, if the permitting authority has reason to believe that a pollutant will contribute to an exceedance of the standard, a site-specific permit limit may be set. This existing rule is fully protective of water quality without the existence of a TMDL.

PPG Industries, Inc. **Comment: 016/0019** **Response: 002/0002**

EPA did not treat Bayou d'Inde as a tidally influenced waterbody.

Although Bayou d'Inde has been recognized by EPA many times to be tidally influenced and that such tidal influence is extremely important to the wasteload allocation process, EPA's contractor indicated in the Draft TMDL Report that tidal dispersion is "not important" at low stream flows. (Draft TMDL Report, p. 18). Not only is the contractor's statement completely without scientific basis, it is contrary to the Louisiana Water Quality Standards. Under LAC 33:IX.1115, entitled "Application of Standards", it is specified that human health criteria are to be applied through consideration of the average tidal cycle for tidally influenced waters and that aquatic criteria are to be applied at one third of the average tidal cycle which is representative of the critical low flow.

PPG Industries, Inc. **Comment: 016/0020** **Response: 004/0089**

EPA's contractor indicated that no estimates of tidal dispersion were available to use in a model. This statement is simply incorrect. Not only are reliable hydrodynamic models available, but there is also a wealth of data available to use as input to such models. Such data include: tidal records, salinity, bathymetry, and inflow. Thus, EPA must reassess Bayou d'Inde using appropriate tidal dispersion analysis.

PPG Industries, Inc. **Comment: 016/0021** **Response: 016/0021**

EPA's contractor grossly underestimated flows for Bayou d'Inde. The average tidal flow for Bayou d'Inde is 363 cfs according to a memorandum from Max J. Forbes, Jr., LDEQ Engineering Section to LDEQ and EPA permitting staff members. A copy of this memorandum is attached as Exhibit 4. The critical low flow, in accordance with the LWQS, LAC 33:IX.1115, is one-third of the average tidal flow or 121 cfs. Id. The basis for these determinations was a Woodward and Clyde survey and a CK Associates survey, both with review and approval by LDEQ.

In contrast, the EPA contractor specified a 7Q10 flow of 0.1 cfs (as the critical low flow) and a harmonic mean flow of 24.7 cfs (which corresponds to average tidal flow in a tidally influenced waterbody). These flow estimates were unsupported in the Draft TMDL Report in spite of the fact that they differ so greatly from the flows developed by the LDEQ engineering section and provided to EPA in 1994. A side-by-side comparison shows the large discrepancy in these flows:

	EPA Presumed Flow (cfs)	Flow Per LDEQ Engineering (cfs)
Critical Low Flow	0.1	121
Long term avg.	24.7	363

If EPA proceeds with any TMDLs for Bayou d'Inde, it must revise the critical low flow and average tidal flow data to comport with the LDEQ engineering determination. Without appropriate flow data for the receiving streams and utilizing inaccurate discharge rates from facilities, the calculated in-stream analyte concentrations are over-estimated by orders of magnitude.

PPG Industries, Inc. **Comment: 016/0022** **Response: 004/0022**

EPA's use of a mass balance methodology was inappropriate for the Calcasieu Estuary.

EPA's Technical Guidance Manual for Performing Waste Load Allocations, Book III: Estuaries (EPA-823-R-92-005) (hereafter "Estuary Guidance Manual") recommends that a mass balance approach be used only as an initial step in establishing TMDLs/WLAs – prior to more refined modeling. Despite this guidance, EPA used such a mass

balance approach for the final TMDLs found in this proposal rather than using it as only an initial screening tool. It is implied by EPA's contractor that this approach was chosen essentially because the contractor did not have time to do more. The time limitation, however, was self-imposed through a settlement agreement entered into between EPA and citizens groups in Sierra Club et al. vs. Clifford, Regional Administrator, EPA et al., Civil Action Number 96-0527, Section "S". Further, an agreed settlement imposed deadline should not, in any case, be a basis for abandoning the appropriate scientific approach for establishing a TMDL.

PPG Industries, Inc. **Comment: 016/0023** **Response: 004/0085**

EPA's contractor indicated in the Draft TMDL Report (p. 16) that it considered use of the WASP6 model but did not go forward with it because "[a]lthough the WASP6 modeling system provides an excellent general tool to model the natural processes that determine the fate of various pollutants in the Calcasieu Estuary, data that can be used to estimate these processes in the Calcasieu Estuary are extremely limited."

Data are not "extremely limited" in the Calcasieu Estuary. It is one of the most studied spots within EPA Region 6. In other localities, EPA and the states (or their contractors) have been able to address data gaps by using literature values for some of the constants. In addition, EPA guidance documents addressing selection of appropriate coefficients for these models are available. Finally, even if data for fate of pollutants is lacking, use of a model making conservative fate assumptions model could be used. Such a simplistic model would still be preferable to the mass balance approach used here.

PPG Industries, Inc. **Comment: 016/0024** **Response: 016/0024**

Use of a mass balance approach that does not include hydrodynamic modeling represents such an oversimplification of the system that it cannot be scientifically defended. EPA has recognized the complexity of the Calcasieu Estuary system and has indicated that hydrodynamic modeling is an important component in establishing any TMDL/WLA for that system. In the Estuary Guidance Manual, where a peer review of prior modeling efforts on the Calcasieu Estuary associated with the development of a TMDL for dissolved oxygen was performed, it was stated:

> "The principal difficulty with the Calcasieu estuary is that it is so complex that virtually no model existing at the time of the study [1985] was fully equal to the task…..Future modeling efforts for this estuary should be directed to improving hydrodynamic simulation and estimates of waste loads." (p. 14-17, Emphasis added).

As EPA has already recognized, this level of complexity mandates sound hydrodynamic simulation and fate and transport modeling in order to develop acceptable TMDLs that are scientifically valid. This modeling must include hydrodynamics and water column/sediment pollutant interactions.

PPG Industries, Inc. **Comment: 016/0025** **Response: 016/0025**

EPA's use of the mass balance approach to model toxic pollutants in the Calcasieu Estuary system is of special concern when projecting compliance with aquatic protection criteria because these have a short-term exposure basis. This mass balance approach simply does not work when applied to a water subsegment that is miles in length and that is tidally influenced. The hydrodynamics of a surface water body must be considered as these determine the transport of pollutants and affect the environmental fate of such. EPA should have used a hydrodynamic model that can adequately simulate the movement of water and transport of pollutants.

PPG Industries, Inc. **Comment: 016/0026** **Response: 004/0086**

As recommended in the Estuary Guidance Manual by the peer reviewers who reviewed an early model for the Calcasieu Estuary, hydrodynamic modeling must be developed for any system this complex in order for the TMDL to have validity. One of these reviewers stated: "good hydrodynamic models exist for virtually all types of estuarine systems." (p. 14-14) Thus, there is no readily apparent reason for not using such a model. Further, such hydrodynamic models should be calibrated and verified appropriately. Next, a water quality model should be developed which accounts for pollutant fate in the estuarine environment. The mass balance approach used by EPA's contractor did not address fate at all and thus, does not represent a realistic, scientifically valid process. Mechanisms affecting fate, such as biodegradation, volatilization, water column-sediment interactions, partitioning of pollutants to solids were simply ignored. Again, use of a mass balance approach is not scientifically valid for establishing a TMDL, although it may be useful as a general screening tool. EPA should complete the process by developing a modeling regime that incorporates both hydrodynamic and fate considerations prior to establishing any final TMDLs.

PPG Industries, Inc. **Comment: 016/0027** **Response: 016/0027**

It is a fundamental tenet of the Estuary Guidance Manual that in developing a TMDL, data gathering efforts should be specifically designed with the data quality objectives of the selected modeling system to be used. While "off-the-shelf" data may be useful in assisting in the process of identifying pollutants for further evaluation, EPA should not use such data extensively in the TMDL process when the data quality objectives for the studies leading to the generation of such data were significantly different than the data quality objectives necessary for a scientifically sound TMDL.

PPG Industries, Inc. **Comment: 016/0028** **Response: 004/0035**

In the case of the TMDLs proposed for Bayou d'Inde, it is difficult to discern exactly what data and what data quality objectives were used by EPA's contractor, as they are not well described in the Draft TMDL Report. It is clear, however, that a least some of the data used by EPA's contractor did not meet appropriate data quality objectives for a TMDL.

EPA's contractor used the following reports as a source of data for this TMDL proposal:

Toxics Study of the Lower Calcasieu River, Research Triangle Institute, March 1990.

Bayou d'Inde, Lower PPG Canal and Calcasieu River Ship Channel Water and Sediment Sampling Report, ChemRisk, 1995.

Focused Site Investigation, Bayou D'Inde, EPA, July 1996.

LDEQ, Calcasieu Estuary Water Sampling Program, 1987-1996

Remedial Investigation/Feasibility Study of Calcasieu River Areas of Concern (AOC), Calcasieu Estuary Cooperative Site, Lake Charles, Louisiana, CDM 1999-2000.

Columbia Environmental Research Center, US Geological Survey, An Assessment of Risks Associated with Contaminated Sediments in the Calcasieu Estuary: Use of the Sediment Quality Triad (In Progress).

Calcasieu Estuary Remedial Investigation/Feasibility Study Baseline Ecological Risk Assessment, CDM, 2001.

These reports were conducted for very different purposes than are relevant for a TMDL and WLA. In many cases, they are screening type studies and in all cases, they are spatially and temporally limited water or sediment quality investigations. They were in no way meant to address ongoing wastewater discharges. They are not statistically representative of any area beyond the small areas at issue. They were focused on known or likely areas of contamination to identify needs for future studies. In many cases, the sediment samples were collected from depths that are not relevant to water column concentrations, yet EPA's contractor gave no analysis where sediment data was used to identify the depths of the samples.

For these reasons, EPA should reevaluate the data used and make its decisions concerning data quality objectives transparent so that it is clear whether there are any problems with use of such data in formulating TMDLs/WLAs. EPA should use only such data that meets data quality objectives consistent with development of a TMDL. This should be accomplished prior to any final TMDLs being promulgated.

PPG Industries, Inc. **Comment: 016/0030** **Response: 004/0016**

EPA grossly over-estimated loadings in many cases by ignoring non-detected values in facilities' DMRs.

PPG's NPDES/LPDES permit states that "zero" values should be reported for HCB and HCBD for any concentration below the analyte MDL. EPA's contractor apparently excluded values reported as non-detect or zero from its database. This may be why EPA's contractor apparently presumed, as shown in Appendix Table E-17, that PPG's average daily and maximum daily discharges of HCB and HCBD exceed PPG's permit limits. (The same error is found with respect to Westlake's anticipated discharges on Appendix E.) PPG routinely monitors these parameters and has achieved nearly 100% compliance with permit limits. No data exist to justify the EPA contractor's presumption that PPG's average and maximum loading exceed permit limits.

PPG Industries, Inc. **Comment: 016/0031** **Response: 016/0031**

PPG was not able to discern what years of DMR data were used by the EPA contractor as such was not stated in the Draft TMDL Report. Further, it is unclear whether EPA used permit limits or whether they used average reported monthly and maximum daily loads for each outfall and then summed the results by pollutant across each outfall. EPA says both in the Executive Summary of the Draft TMDL Report, p. ES2.

It is not clear what time period was reviewed and whether such time period is appropriate for this TMDL

proceeding. The Draft TMDL Report does not indicate which years of facility data were reviewed or why the time period is deemed sufficiently representative of normal plant operation. It is also unclear whether the data used is up-to-date.

PPG requests that EPA provide publicly accessible information to better describe the data it did use and then repropose this TMDL for comment to allow adequate public review of the data and assumptions used by EPA or its contractor.

PPG Industries, Inc. **Comment: 016/0032** **Response: 016/0032**

EPA did not use appropriate facility flows.

EPA's contractor erroneously used only the sum of PPG's internal outfalls 101 and 201 as the facility average flows. However, this estimate left out PPG's once through cooling water discharge, which is combined with the 101 and 201 flows and is discharged through Outfall 001. The appropriate average flow for PPG is the Outfall 001 flow. PPG is attaching, as Exhibit 5 a summary of its 2001 DMR flows for Outfall 001. This shows that the average daily flow is 154.8 MGD and that the maximum daily flow is 243.9 MGD. EPA should use these flows rather than those erroneously determined in the Draft TMDL report.

It should be noted that Outfall 001 flow rate is more than an order of magnitude greater than the sum of 101 and 201, so this is a significant issue for development of the appropriate TMDLs and WLAs.

PPG Industries, Inc. **Comment: 016/0033** **Response: 004/0017**

EPA misused data from the LDEQ Ambient Water Quality Network and NOAA's Calcasieu database.

This section implies a strong bias in the use of data in that all "non-detects" (ND) were ignored. In several instances, the majority of data entries were 'ND". Further, EPA's contractor inappropriately used only the mean of detected values to compare to state water quality criteria.

PPG Industries, Inc. **Comment: 016/0034** **Response: 016/0034**

Hexachlorobutadiene (HCBD) is not causing any current impairment of Bayou d'Inde and should be delisted. HCBD has not been detected by PPG in the water column in the Calcasieu Estuary, including Bayou d'Inde, since 1994. PPG tests water column data quarterly at each of the 11 fish monitoring stations from which fish samples are collected under the Calcasieu Estuary Biological Monitoring Program. Such water monitoring has been conducted for 12 years. The majority of these determinations were performed via EPA Methods 612 or 625 (SIM) with MDLs at 0.34 ug/L rather than those used by EPA in this TMDL analysis that used an MDL of 9 ug/L. Thus, even at a significantly lower detection limit than used by EPA, HCBD has not been found.

PPG Industries, Inc. **Comment: 016/0035** **Response: 004/0112**

Although the current state HCBD water quality criterion of 0.11 ug/L is below the detection limit, it is based on old EPA water quality criteria. Since the state criterion was developed, more recent studies led IRIS to adjust the cancer slope factors for HCBD. As a result, the revised EPA guidance recommends raising the criteria to 50 ug/L. See 62 Fed. Reg. 42160. Because LDEQ uses the same basis for establishing the water quality criteria as does EPA, it is anticipated that LDEQ will revise its water quality criterion for HCBD to incorporate this more recent scientific data at its next scheduled triennial review. The new EPA criterion is above the detection limits used by both PPG and EPA. Thus, it is clear that there is no current exceedance of any level posing any human health concern.

PPG Industries, Inc. **Comment: 016/0036** **Response: 016/0036**

Water column monitoring data is also well supported by years of HCBD fish tissue determinations throughout the estuary. PPG supplied eight quarters of fish testing data to EPA for use in this TMDL. Such data was from the Calcasieu Estuary Biological Monitoring Program, which is collected by CH2M Hill for LDEQ and LDHH and managed by PPG. The data supplied by PPG was used by EPA to develop Appendix Tables D-4 through D-6 of the Draft TMDL Report. However, PPG is not certain how EPA used this data, as these Tables appear to contain numerous errors when compared to the data originally supplied by PPG. PPG believes that EPA's contractor may have misaligned columns and/or put data in the wrong columns when preparing this chart. PPG is therefore supplying revised Tables D-4 through D-6 with the corrected data as Exhibit 6 to these comments.

PPG Industries, Inc. **Comment: 016/0037** **Response: 016/0037**

The Draft TMDL Report contains other obvious data errors as well. The Table 20 listing of "Existing" loads attributed to PPG for HCBD is in error. The mean and maximum loadings should indicate "ND" as the DMRs report

zero values for non-detectable compliance monitoring, as instructed in Part I of PPG's NPDES Permit. PPG monitors and reports both internal outfalls and the final external outfall three times per week. Further, Appendix Table E-17 indicates that EPA's contractor erroneously determined that PPG's daily average and daily maximum loadings are higher than its permit limits. As noted, PPG's NPDES/LPDES permit monitoring shows that this is simply not the case, so the assumptions used by EPA for WLAs are invalid.

Given the above points, HCBD should clearly be delisted and no further TMDL activities are appropriate.

PPG Industries, Inc. **Comment: 016/0038** **Response: 016/0038**

EPA has proposed a TMDL for total PCBs for Bayou d'Inde. The Draft TMDL Report indicates that only 1 sample out of 27 water column samplings for PCBs in Bayou d'Inde showed detectable levels of PCBs. Without more supporting information concerning the data quality (general methodology, detection limits, selectivity of detection, quantification method) and given the difficulty of low level measurement, the use of this data point is questionable. EPA indicates that concentrations in fish tissue are indicative of water concentrations that may exceed the standard, but also states that none of the facilities permitted to discharge into this subsegment are permitted to discharge PCBs.

PPG Industries, Inc. **Comment: 016/0039** **Response: 004/0009**

PPG believes that it is inappropriate to establish TMDLs for PCBs because such will have no impact on PCB levels in the water column. PCBs are ubiquitous in the environment due to widespread use in electrical equipment prior to the adoption of the Toxic Substances Control Act ("TSCA") restrictions on the manufacture and use of PCBs. The presence of PCBs in the environment is due to past releases, particularly from transformers, prior to the TSCA program. However, the TSCA program has banned their manufacture and phased out their use. Thus, TSCA provides the reasonable assurance that measures have been and will be taken to address PCB contamination. Standards for ongoing wastewater dischargers beyond technology based effluent guidelines are not needed as they are not the solution to any PCB problem. This is the cornerstone requirement for enactment of a TMDL – and this requirement is not met. Instead, EPA should focus its efforts on ensuring compliance with TSCA requirements and the phase-out of use of PCB containing electrical equipment.

The fish tissue concentrations throughout the estuary, especially in less motile aquatic species, indicate the ubiquitous nature of PCBs. Further, comparison with nationally published data (EPA 1992) indicate the levels of PCBs found in the Calcasieu Estuary are typically encountered in other urbanized areas of the U. S.

PPG Industries, Inc. **Comment: 016/0040** **Response: 016/0036**

It should be noted that the data presented in the Draft TMDL Report, Appendix Tables D-7 through D-9 contain the same errors as were discussed above with respect to HCBD data in fish tissues. For this reason, PPG has included revised Tables D-7 through D-9 with Exhibit 6. These revised tables show the most recent eight calendar quarter monitoring data.

PPG Industries, Inc. **Comment: 016/0041** **Response: 004/0100**

It should also be noted that EPA has revised its human health criteria for total PCBs based upon changes in the IRIS database. In 1999 EPA revised the human health water quality criteria for PCBs in the National Toxics Rule. 64 Fed. Reg. 61182 (November 1999). The NTR calculates human health criteria for PCBs using the cancer slope factor entered in IRIS. Because better data became available as the result of new studies, IRIS updated the cancer potency factor. This updated cancer potency factor resulted in a revised EPA human health water quality criteria of 0.14 ug/L for protection of human health from consumption of aquatic organisms and water, and 0.15 ug/L for consumption of aquatic organisms only. Louisiana's human health water quality criteria of 0.01 ng/L is based on an outdated cancer slope factor and will likely be revised to reflect updated cancer potency data during the next triennial review.

However, even if the human health water quality criteria is revised, which will necessitate a revision of any TMDL, it is highly unlikely that any proposed or future TMDL-derived effluent limitations will cause any decline in tissue concentrations. A TMDL is simply not the appropriate vehicle to address PCB contamination.

PPG Industries, Inc. **Comment: 016/0042** **Response: 003/0002**

There is no evidence that 1,1,2,2-tetrachloroethane is causing any impairment as it has not been detected in Bayou d'Inde in at least the last ten years. EPA is proposing a TMDL for tetrachloroethane simply because it was on LDEQ's 303(d) list as a result of being detected once in the late 1980's in Bayou d'Inde and because the current standard is slightly below the detection limit. However, in its letter of October 10, 2001 to EPA attached as Exhibit

1, LDEQ requested that Bayou d'Inde continue on the 303(d) list only for HCB, HCBD and PCBs. EPA should delist Bayou d'Inde for this pollutant because EPA has no reason to believe that there is any reasonable potential for this pollutant to exceed the standard.

There is no evidence that bromoform is causing any impairment. In fact, EPA's own data indicate that "Bromoform is detected in water (Appendix Table B-33), but concentrations do not exceed the human health water quality criterion of 34.7 ug/L." (Draft TMDL Report p.42) EPA further acknowledges that the standard is above the detection limits. In its letter of October 10, 2001 to EPA attached as Exhibit 1, LDEQ requested that Bayou d'Inde continue on the 303(d) list only for HCB, HCBD and PCBs. EPA should delist Bayou d'Inde for this pollutant because EPA has no reason to believe that there is any reasonable potential for this pollutant to exceed the standard.

Based on the evidence reviewed in this section, there is no valid reason for not delisting bromoform from this basin subsegment. EPA has delisted other pollutants in other segments for exactly the same reasons.

PPG Industries, Inc. **Comment: 016/0044** **Response: 002/0003**

EPA did not use clean techniques for data acquisition for copper in this TMDL despite the fact that the Louisiana Water Quality Standards indicate that clean techniques data is required to assess compliance with criteria when such criteria are in the part per billion range, as is the aquatic criteria for copper. EPA was provided with copper data for Bayou d'Inde acquired through use of clean techniques but apparently did not consider it in this TMDL process. See Exhibit 2 attached to these comments. These data were apparently overlooked and hence, not used in the evaluation of copper. These data clearly refute the early, traditional techniques for water column evaluation and should be used as the basis for the delisting copper from this subsegment. None of the clean techniques dissolved copper values obtained from Bayou d'Inde exceeded the marine acute or chronic criteria. The data provided by LDEQ to EPA in August 2001 was developed from a report commissioned by PPG titled "A Final Report for Trace Metals 'Clean Technique' Sampling and Laboratory Analysis, CK Associates, Inc., March 2001." A copy of this report is attached as Exhibit 3. This report, together with LDEQ's August 20, 2001 report provide evidence that EPA should remove copper from the 303(d) list and withdraw the proposed TMDL for copper, not only on Bayou d'Inde, but also on Bayou Verdine and the Calcasieu Ship Channel/Coon Island Reach subsegment.

PPG Industries, Inc. **Comment: 016/0045** **Response: 016/0045**

Hexachlorobenzene (HCB) is not causing any current impairment of Bayou d'Inde and should be delisted. HCB has not been detected by PPG in the water column in the Calcasieu Estuary, including Bayou d'Inde, since 1994. PPG tests water column data quarterly at each of the 11 fish monitoring stations from which fish samples are collected under the Calcasieu Estuary Biological Monitoring Program. Such water monitoring has been conducted for 12 years. The majority of these determinations were performed via EPA Methods 612 or 625 (SIM) with MDLs at 0.05 ug/L. rather than those used by EPA in this TMDL analysis that used a higher MDL. Thus, even at a significantly lower detection limit than used by EPA, HCB has not been found.

PPG Industries, Inc. **Comment: 016/0046** **Response: 004/0112**

Although the current state HCB water quality criterion of 0.25 ng/L is below the detection limit, it is based on old EPA water quality criteria. Since the state criterion was developed, more recent studies led IRIS to adjust the cancer slope factors for HCB. As a result, the revised EPA guidance recommends raising the criteria to 0.77 ng/L. See 57 Fed. Reg. 60848. Because LDEQ uses the same basis for establishing the water quality criteria as does EPA, it is anticipated that LDEQ will revise its water quality criterion for HCB to incorporate this more recent scientific data at its next scheduled triennial review. The new criterion is still below the MDLs used by both PPG and EPA; however, testing by PPG and EPA have not detected any HCB in recent years.

PPG Industries, Inc. **Comment: 016/0047** **Response: 016/0036**

PPG believes that the years' worth of HCB fish tissue determinations throughout the estuary support the fact that HCB levels have been declining. Further, such data confirm that water quality levels are at the standards. PPG supplied eight quarters of such fish testing data to EPA for use in this TMDL. Such data was from the Calcasieu Estuary Biological Monitoring Program, which is collected by CH2Mhill for LDEQ and LDHH and managed by PPG. The data supplied by PPG was used by EPA to develop Appendix Tables D-1 through D-3 of the Draft TMDL Report. However, PPG is not certain how EPA used this data, as these tables appear to contain numerous errors when compared to the data originally supplied by PPG. PPG believes that EPA's contractor may have misaligned columns and/or put data in the wrong columns when preparing these tables. PPG is therefore supplying revised Tables D-1 through D-3 with the corrected data. These revised tables are included within Exhibit 6 to these

comments.

PPG Industries, Inc. **Comment: 016/0048** **Response: 016/0037**

The Draft TMDL Report contains other obvious data errors as well. The Table 28 listing of "Existing" loads attributed to PPG for HCB is in error. The mean and maximum loadings should indicate "ND" as the DMRs report zero values for non-detectable compliance monitoring, as instructed in Part I of PPG's NPDES/LPDES Permit. PPG monitors and reports both internal outfalls and the final external outfall three times per week. Further Appendix Table E-17 indicates that EPA's contractor erroneously determined that PPG's daily average and daily maximum loadings are higher than its permit limits. As noted, PPG's NPDES/LPDES permit monitoring shows that this is simply not the case, so the assumptions used by EPA for WLAs are invalid.

PPG Industries, Inc. **Comment: 016/0049** **Response: 016/0045**

Given that there is no evidence of impairment from HCB, HCB should be delisted. As evidenced by the declining values shown through fish tissue testing and the EPA contractor's conclusion that the fish tissue data confirms the water is at or near the criterion, any HCB contamination has been addressed, and regulation of ongoing wastewater discharges pursuant to a TMDL/WLA is not appropriate.

PPG Industries, Inc. **Comment: 016/0050** **Response: 002/0035**

Mercury was not on the 303(d) list; therefore, EPA should not develop a TMDL for mercury.

Louisiana LDEQ has never added mercury to the 303(d) list; thus, it is inappropriate for EPA to propose a TMDL for mercury. As noted above, Louisiana LDEQ specifically confirmed in its October 10, 2001 letter to EPA, attached as Exhibit 1, that the 303(d) listing for "other inorganics" for Bayou d'Inde did not apply to specific metals. EPA cannot propose a TMDL for mercury under the Clean Water Act under these circumstances.

PPG Industries, Inc. **Comment: 016/0051** **Response: 004/0014**

EPA proposed a TMDL for mercury because it detected total mercury dissolved in the water column in 13 of 16 samples. However, the Louisiana chronic aquatic water quality criteria for mercury requires that if total mercury is detected in the water column, that is only an indicator, and to determine if there is an exceedance of the standard, fish testing is required. LAC 33:IX.1115. Table 1, note 11. Specifically, this rule provides:

> If the four-day average concentration for total mercury exceeds 0.012 µg/L in freshwater or 0.025 µg/L in saltwater more than once in a three-year period, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methylmercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the state must notify the appropriate EPA Regional Administrator, initiate a revision of its mercury criterion in its water quality standards so as to protect designated uses, and take other appropriate action such as issuance of a fish consumption advisory for the affected area.(Emphasis added.)

This criteria was adopted based on the recognition that methylmercury is the form of mercury that poses toxicity concerns for fish (and humans). EPA has not performed any fish testing. PPG has conducted testing of the edible portion of aquatic species of concern since 1989. PPG is attaching the results of this fish testing as Exhibit 7. The data confirm that there is no exceedance of the chronic aquatic criteria and that a TMDL is not necessary. This testing program was conducted for PPG by CH2M Hill quarterly at 11 stations throughout Bayou d'Inde, Bayou Verdine, and the Calcasieu River. The locations of these stations are shown on Exhibit 8. The report attached as Exhibit 7 provides the data in several formats. Table 1 is a summary for the first two quarters of 2001. Table 2 presents the same information averaged by station for each species. Table 3 presents the average concentrations by study year for the study area. Table 4 presents the average mercury concentrations by study year for Bayou d'Inde related stations. And Table 5 provides a summary table showing average concentrations for each species, at each station, for each monitoring year since the program began in 1989.

Similar results were obtained by the EPA Estuary Phase II study, attached as Exhibit 9. This data, "Fall 2000 Human Health Fish Data Summary – EPA Phase II Estuary Study" was apparently not considered in the preparation of this TMDL. Exhibit 9 confirms that there is no exceedance of the state's chronic aquatic criteria for mercury and that the TMDL should be withdrawn.

These studies indicate that mercury in fish and shellfish tissues, although within acceptable criteria, is higher in the upper and middle Bayou d'Inde area, compared to lower portions of the Estuary. This is especially true in the upper reach of Bayou d'Inde where the water is fresher and originates from urban and agricultural runoff. The sparse data contained in Appendix Tables D-10 through D-12, attributed to NOAA, indicate largemouth bass to be the only

elevated measurements. Some methylation may be occurring in this freshwater region. The average mercury tissue concentration in the lower portion of Bayou d'Inde from a much larger sample database collected by PPG from the period 1989 to present, however, is 0.208 mg/Kg (ppm), lower than similar areas within Louisiana. Using EPA's "Gold Book" marine species bioaccumulation factor (BAF) of 85,000 and the average tissue value for the lower Bayou d'Inde area, a methylmercury instream concentration is calculated to be 0.002 ug/L (ppb). This value is clearly an order of magnitude lower than the Louisiana marine aquatic protection criterion of 0.025 ug/L (Note that this section of the Draft TMDL incorrectly references the marine criterion as "copper of 4.4 ug/L" rather than the mercury criteria.)

The mercury concentrations in Bayou d'Inde compare favorably to the National Mean Mercury Concentrations in Tissues of Selected Fish Species, as shown on the chart attached as Exhibit 10.

PPG Industries, Inc. **Comment: 016/0054** **Response: 004/0012**

It should also be noted that the mercury water column data used in the Draft TMDL Report were obtained without benefit of ultra-clean techniques sampling or analyses. Further, the analytical methodology used, traditional cold vapor atomic absorption (CVAA-EPA Method 245.1), is inappropriate for the determination of low level, ambient water mercury concentrations. Not only is the MDL elevated, but also the method is prone to positive interferences, especially in saline matrices. In order to assess compliance with the mercury criteria, which is in the part per trillion range, EPA must use ultra-clean techniques for sampling per the LWQS requirements discussed above. Further, EPA should use analytical methods such as EPA 1631b or 200.8 which would be appropriate for water quality criteria comparisons.

PPG Industries, Inc. **Comment: 016/0055** **Response: 002/0035**

EPA proposed a TMDL for nickel for the chronic aquatic life criteria, although EPA's contractor detected nickel in dissolved water concentrations in excess of the acute standard in only 2 of 36 samples (less than 10%). As noted above, EPA did not use clean techniques for data acquisition for nickel in gathering this data despite the fact that the Louisiana Water Quality Standards indicate that clean techniques data is required to assess compliance with criteria when such criteria are in the part per billion range, as is the aquatic criteria for nickel. It is scientifically invalid for EPA to propose a TMDL based on this limited data. Per LWQS, EPA must gather nickel data using clean techniques to determine whether there is any evidence of impairment of the standard. In light of the extensive history in other areas of the estuary and state where use of clean techniques have confirmed no exceedance of the nickel criteria, it is likely that this result will apply to further analysis of Bayou d'Inde as well. PPG would be willing to share in the cost of any clean techniques data gathering effort.

As noted above, because nickel is not on the 303(d) list in any case, EPA should withdraw the proposed TMDL until such further data gathering and evaluation is complete. Based on these observations, a TMDL for nickel is not justified for Bayou d'Inde at this time.

PPG Industries, Inc. **Comment: 016/0057** **Response: 016/0057**

The Draft TMDL Report erroneously speculated that mercury might be responsible for sediment toxicity in Bayou d'Inde.

The Draft TMDL Report indicated that mercury might be responsible for observed sediment toxicity in Bayou d'Inde. This statement was speculative and was not supported by any direct evidence. In fact, ChemRisk performed total mercury toxicity evaluations in sediment from lower Bayou d'Inde. These results are documented in a manuscript entitled "A Site-Specific Evaluation of Mercury Toxicity in Sediment," attached as Exhibit 11. The abstract of this study states:

Abstract. A site-specific maximum observed no-effect concentration was identified for mercury in sediments of the Calcasieu River estuary (Louisiana, USA), as an alternative to literature-based sediment quality assessment guidelines, which do not account for site-specific factors influencing mercury bioavailability and toxicity. Ten-day whole-sediment toxicity tests conducted under estuarine conditions (10 ppt salinity) assessed survival and growth (dry weight) of the amphipods Hyalella azteca and Leptocheirus plumulosus. A dilution study evaluated 29 sediment samples, including 11 analyzed for numerous chemical parameters. The maximum mercury concentration in a nontoxic sample was 2.8 mg/kg; however, toxicity associated with higher mercury concentrations appeared to be explained by other chemicals. A follow-up study was conducted, evaluating three sediment samples with mercury concentrations ranging from 0.3 to 4.1 mg/kg and relatively low concentrations of other co-contaminants. Results of this study indicated no toxicity attributable to mercury at the highest test concentration, indicating that the site-specific sediment effects threshold for mercury likely exceeds 4.1 mg/kg.

PPG Industries, Inc. **Comment: 016/0058** **Response: 016/0058**

Additionally, EPA's Phase II study database of the upper Calcasieu Estuary, including Bayou d'Inde, includes methylmercury sediment data. Lower Bayou d'Inde methylmercury data range from 0.002-0.005 mg/Kg, somewhat lower than the reference areas chosen for the study.

PPG Industries, Inc. **Comment: 016/0059** **Response: 004/0024**

EPA's contractor did not consider partitioning of organic chemicals and metals to particulates and subsequent sedimentation and potential resuspension.

EPA states that it did not include partitioning of organic chemicals and metals to particulates and subsequent sedimentation because: (1) it has no estimates of particle density and sedimentation rates; and (2) if metals and organic chemicals in particulates accumulate in contaminated sediments they will contribute to an existing impairment (draft TMDL, page 18). Both of these arguments for not dealing with this fate mechanism are unjustified. With respect to sedimentation rates, there are ample data in the technical literature that can be used to estimate such rates in tidally-affected surface waters. As discussed earlier, default rates for variables such as sedimentation of particulates can be used in a model and sensitivity analyses can be used to establish acceptable estimates for prediction of water column pollutant concentrations.

PPG Industries, Inc. **Comment: 016/0060** **Response: 016/0060**

The particulates currently settling from the water column will not necessarily cause or contribute to elevated pollutant concentrations in the sediment. In fact, once effluent quality improves (which is probably already the case), the particulates settling from the water column may dilute the pollutant concentrations in the sediment. Such an analysis to determine if pollutant chemicals attached to particulates actually could cause or contribute to sediment contamination was never done by EPA.

PPG Industries, Inc. **Comment: 016/0061** **Response: 004/0093**

A very important issue with respect to sediment-water column interaction and the fate of organic chemicals and metals in the Calcasieu Estuary is not evaluated by EPA (other than mentioning it) in the TMDL. The existing discharges may not contribute to the existing sediment contamination and may actually be diluting sediment contaminant concentrations if they are having any effect at all. However, EPA did not evaluate any fate or transport mechanisms with respect to sediment contamination so there is no information or evaluation to determine if existing discharges are contributing to sediment pollutant concentrations. The absence of any scientific analysis of the cause and effect relationship between discharges and sediment contaminants results in a scientifically flawed TMDL.

PPG Industries, Inc. **Comment: 016/0062** **Response: 004/0062**

NOAA ERM concentrations are not appropriate for establishing site-specific sediment toxicity correlations or TMDL targets.

NOAA developed its sediment quality guidelines, including the ERM values, to assist it in the identification of sediments that required additional study in its National Status and Trends Program. These sediment quality guidelines are not intended to be sediment criteria and should not be used for this purpose. NOAA's summary of its guidelines includes the following statement: "The SQGs were not promulgated as regulatory criteria or standards. They were not intended as cleanup or remediation targets, or as discharge attainment targets. Nor were they intended as pass-fail criteria for dredged material disposal decisions or any other regulatory purpose. Rather, they were intended as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments." The NOAA SQGs cannot be used as de facto sediment quality criteria because they represent a range of aquatic organism species, sediment characteristics, and aquatic environments. The SQGs do not consider the bioavailability of pollutants that are influenced by local sediment and water chemistry. Likewise, the sensitivity of resident aquatic species is not reflected by the SQGs. Therefore, use of the NOAA SQGs as TMDL targets for certain pollutants found in sediments is not scientifically supported and cannot be the basis for the draft TMDLs.

EPA's SQGs are not sediment quality criteria and are not appropriate as TMDL targets.

EPA's SQGs are based on the equilibrium partitioning concept. 12 EPA originally proposed these values as sediment quality criteria but subsequently has identified them as guidelines because they do not reflect site-specific conditions and bioavailability of pollutants with sufficient reliability to be used as numeric sediment quality criteria. This is true even though they consider the sediment organic content and acid volatile sulfides concentrations to predict the potential toxicity of nonionic organic chemicals and metals, respectively. The EPA SQGs are intended to

be used in the same way as the NOAA SQGs — to identify sediments that merit additional study to determine whether toxicity is present and, if so, to conduct the required site-specific studies to identify the causative pollutant(s). They are not sediment quality criteria and cannot be used as target concentrations for a TMDL.

PPG Industries, Inc. **Comment: 016/0064** **Response: 004/0081**

EPA should not have allocated copper and nickel load allocations attributable to non-point sources when establishing the TMDLs.

The TMDLs for copper and nickel are both to implement the state aquatic protection criteria. EPA's contractor assumed loadings from nonpoint sources for these parameters. Doing so is technically incorrect for evaluation of aquatic life criteria when the evaluation of compliance with such criteria is at a critical low flow, such as the 7Q10 used in this TMDL proceeding. Obviously, there will be no surface runoff from rain events at the same time the critical low flow occurs; if it were raining there would be no low flow. Thus, there should be no presumption of non-point source loadings of these pollutants under this flow condition.

Although this is a logical conclusion, if the EPA contractor wanted to support such conclusion, then surface runoff can be evaluated by reviewing the stream flow records in the watershed to determine when the 7Q10 flow has most recently occurred and then collecting and evaluating precipitation records for the same time period. It is probable that even if there is precipitation somewhere within the watershed during the period when the 7Q10 occurs, it will be very limited in both amount and spatial distribution and will not contribute non-point source loadings of significance. The TMDL should be recalculated assuming that there is no non-point source loading for all pollutants that have aquatic life criteria as targets, i.e., those waste load allocations that are based on the critical low flow.

PPG Industries, Inc. **Comment: 016/0066** **Response: 004/0083**

EPA's contractor should not arbitrarily assign a 20% margin of safety.

Margins of safety for TMDLs should be based on estimates of the uncertainty of the estimated waste load and load allocations. EPA's contractor did not perform any analysis to justify its 20% margin of safety. (Draft TMDL Report, page 20). EPA has stated in the TMDL regulation (65 Fed. Reg. 43668, July 11, 2000) that the MOS should be based on the estimated uncertainty in the TMDL predictions. While this regulation is not yet in effect, EPA should base the margin of safety on an uncertainty analysis of the TMDLs.